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Update on the Management of Carcinoma Unknown Primary with Neck Metastases

Introduction:

Carcinoma of unknown primary (CUP) in the head and neck region remains a persistent and complex challenge for clinicians worldwide. Significant advances in diagnostic modalities—such as cross-sectional imaging, molecular diagnostics, robotic surgery, and positron emission tomography (PET)—have improved the ability to identify primary sites, especially within the oropharynx, notably HPV-related cancers.^{1,2} With the rising incidence of HPV-associated oropharyngeal carcinomas, the proportion of CUP cases presenting with regional metastases and occult primaries is also increasing, emphasizing the need for updated management strategies.³

Definition and Historical Background

CUP is a heterogeneous disease characterized by metastatic cervical lymph nodes with no identifiable primary tumor despite thorough evaluation's efforts.⁴ In many of these cases were presumed to involve 'branchiogenic carcinoma' - a controversial and largely unsupported concept—since many series failed to meet the classical criteria established by Hayes Martin.⁵ It is now recognized that a significant portion of patients represent metastatic carcinoma from occult primaries, primarily within the oropharynx.⁶

Incidence

The incidence of CUP in head and neck cancers ranged between 30% and 10%. However, with the implementation of standardized protocols incorporating PET-CT, these figures have decreased to approximately 5%.^{7,8} At Guy's & St Thomas' NHS Trust, the incidence declined from 8% to 4% over the last decade.⁸ The increasing prevalence of HPV-positive cancers suggests many of these occult primaries are located within the oropharynx, particularly the tonsils and tongue base.⁹

Nomenclature and Staging

The 8th edition of the AJCC and UICC staging manuals reflects significant updates. Notably, it redefines the T0 category for p16-positive oropharyngeal and other HPV-related cancers, recognizing the difficulty of locating the primary lesion.^{10,11} Demonstrating HPV or Epstein-Barr Virus

(EBV) status via cytology or tissue samples enables better localization, mainly implicating the oropharynx and nasopharynx as primary sites.¹²

Evaluation and Diagnosis

A comprehensive, systematic approach is essential. It begins with detailed history and clinical examination, including fiber-optic nasolaryngoscopy.¹³ Modern imaging techniques such as Narrow Band Imaging (NBI) significantly increase early detection of mucosal neoplastic changes.¹⁴ Cross-sectional imaging—covering CT, MRI, and FDG PET-CT—is crucial to localize occult primaries before invasive procedures.¹⁵ When initial assessments are inconclusive, panendoscopy with bilateral tonsillectomy, directed biopsies of the tongue base, and nasopharyngeal biopsies are recommended.¹⁶ The use of robotic tongue base mucosectomy has demonstrated success in detecting primaries in more than 50% of PET-negative cases.¹⁷

Positron Emission Tomography (PET) Scanning

FDG-PET-CT is a mainstay in the evaluation of CUP, with studies reporting a primary detection rate of approximately 37% and pooled sensitivities and specificities exceeding 84%.^{18,19} Performing PET-CT prior to biopsies helps prevent false positives caused by post-inflammatory uptake, thus optimizing diagnostic accuracy.¹⁹

NICE Recommendations

The UK's NICE guidelines endorse a multi-disciplinary, stepwise approach, including ultrasound-guided FNAC, PET-CT imaging, and guided biopsies.^{7,20} These protocols have been associated with improved primary tumor detection and more precise management.²¹

Clinical Management:

Management is dictated by nodal staging and disease extent. For early-stage disease (N1), single-modality treatments such as neck dissection or involved-field radiotherapy are effective.²² For advanced disease (N2/N3), particularly with extracapsular spread, combined modality treatment—surgery, radiotherapy, and chemotherapy—is standard.²³ Recent evidence supports PET-CT-guided active surveillance following chemoradiotherapy, which demonstrates

comparable outcomes to upfront neck dissection but with less morbidity.²⁴

Surgical Management of the Neck

While traditional management involves radical or modified radical neck dissection,²⁵ recent data suggest that PET-CT-guided surveillance can better identify residual disease, thereby reducing unnecessary surgeries and their associated morbidity.²⁶

Management of the Violated Neck

Current trends favor earlier, targeted intervention – either surgery or CRT – guided by multidisciplinary assessment and advanced imaging techniques. Centralized, protocol-driven management ensures adequate treatment delivery and improved outcomes.²⁷

Branchial Cyst Carcinoma

The existence of branchial cyst carcinoma, or ‘branchiogenic carcinoma,’ remains contentious. Many series have failed to meet the classical criteria outlined by Hayes Martin, raising doubts about its true existence.¹ Patients over 35 presenting with lateral neck cystic masses should be presumed to harbor malignancy until proven otherwise.² Such patients are recommended to participate in a carcinoma of unknown primary (CUP) investigation protocol, even if initial fine-needle aspiration cytology (FNAC) does not indicate metastasis.³

Radiation Therapy to the Neck and Putative Primary Site

The extent of radiotherapy remains a subject of debate. Some centers favor unilateral irradiation of the neck and the most probable primary site, whereas others advocate for bilateral neck irradiation, or “total mucosal irradiation,” aimed at eradicating occult primaries.^{6,28} Data suggest that bilateral neck irradiation enhances local control and disease-free survival but does not invariably translate into improved overall survival.²⁹ The increased morbidity associated with extensive irradiation – such as xerostomia, dysphagia, and feeding tube dependence – remains a concern. Intensity-modulated radiotherapy (IMRT) with bilateral coverage has demonstrated a reduction in both acute and late toxicity, becoming the standard in many countries.^{30,31}

Recommended Treatment Approaches

bcT0N1M0 and cT0N1M0 without ENE: Patients may be managed effectively with single-modality therapy either selective neck dissection or involved-field radiotherapy. Close surveillance of the upper aerodigestive tract mucosa is essential post-treatment.³²

PT1N0M0 with extracapsular extension (ENE): Post-operative radiotherapy (RT), especially if ENE is detected, is advised.³³

T0N2M0 and T0N3M0: These advanced cases should typically receive primary chemoradiotherapy (CRT) followed by PET-CT-guided surveillance or combined modality treatments (neck dissection with subsequent RT or CRT), tailored on a case-by-case basis.¹⁷

Treatment Outcomes

Most literature reports improved survival with combined modality treatments. Five-year overall survival (OS) varies with nodal stage, with figures ranging from 70–100% for N1 disease to 30–60% in N3 cases.^{34,35} A large retrospective series from a single institution recorded 100% survival for N1 and 60% for N2/N3 disease, consistent with data from the Memorial Sloan Kettering Cancer Center, where two-year survival rates for regional progression-free, distant metastases-free, and overall survival exceeded 85–90%.³⁶

Patterns of Failure

Recurrences are predominantly locoregional, especially if initial treatment involved radiotherapy alone; many recurrences are associated with extracapsular disease.³⁷ Distant metastases, particularly to the lungs, often occur within the first-year post-treatment. Recurrences in potential primary sites vary markedly ranging from 0% to 66% most frequently appearing within 24 months at sites such as the oral cavity, oropharynx, and nasopharynx.³⁸

Conclusion

The management of CUP has seen significant improvements with the advent of advanced diagnostic and therapeutic modalities. Currently, the incidence of true CUP is declining to fewer than 5%, primarily due to better detection techniques; however, the apparent rise in HPV-positive cancers may influence future trends.³⁹ A comprehensive workup – including panendoscopy, bilateral tonsillectomy, biopsies of the nasopharynx and tongue base, coupled with cross-sectional imaging such as CT, MRI, and PET-CT – remains essential.¹⁸ The use of molecular diagnostics can further enhance primary site detection, enabling tailored treatment strategies.

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Treatment of Large Bladder Stone by Using Perurethral Nephroscope with Pneumatic Lithotripsy

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Abstract:

Background: Large bladder stones can cause significant morbidity and typically require active interventions. Pneumatic lithotripsy using a perurethral nephroscope is a minimally invasive and cost-effective treatment option. This study aimed to evaluate the efficacy and safety of treating large bladder stones using a perurethral nephroscope combined with pneumatic lithotripsy.

Methods: This cross-sectional study was conducted at Pabna Medical College Hospital and affiliated private hospitals from February 2020 to January 2025. Twenty-three patients with large bladder stones (≥ 3 cm) were enrolled. All patients underwent stone fragmentation using pneumatic lithotripsy with a perurethral nephroscope. Operative time, hospital stay, catheterization duration, and complications were also documented. Data were analyzed using SPSS version 25.0, with significance set at $p < 0.05$.

Results: The mean age was 52 ± 12 years, and 87.0% of the patients were male. The average stone size was 4.1 ± 0.6 cm in diameter. The mean operative time was 48.5 ± 12.0 minutes, with an average hospital stay of 1.6 ± 0.5 days. All patients were stone-free after the procedure. Minor complications occurred in 26.1% of the cases, including hematuria (13.0%), urinary retention (8.7%), and fever or stricture (4.3% each). No major complications were noted.

Conclusion: Perurethral nephroscopy with pneumatic lithotripsy is an effective, safe, and minimally invasive technique for managing large bladder stones, particularly in resource-limited settings.

Introduction:

Bladder stones constitute a significant subset of lower urinary tract calculi and continue to present a clinical challenge, particularly in resource-limited settings.¹ These stones are commonly associated with bladder outlet obstruction, urinary tract infections, and prolonged catheterization, and they may cause symptoms such as hematuria, dysuria, and urinary retention.² Large bladder stones, typically defined as those exceeding 3 cm, often require active intervention,

as spontaneous passage is rare and conservative management is usually ineffective.³

Traditional management options for large bladder calculi include open cystolithotomy, percutaneous cystolithotripsy, and transurethral fragmentation using energy sources such as ultrasonic, pneumatic, or laser lithotripters.^{4,5} Among these, pneumatic lithotripsy offers several advantages: it is cost-effective, highly efficient, and causes minimal thermal

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injury to surrounding tissues.⁶ Additionally, the use of a nephroscope—a tool traditionally employed in percutaneous nephrolithotomy—has been increasingly adapted for transurethral access in the bladder due to its superior optics, larger working channels, and improved irrigation flow.⁷

This novel combination of a perurethral nephroscope with pneumatic lithotripsy presents a minimally invasive and effective method for managing large bladder stones. Channa et al. demonstrated high success rates using this technique, with minimal complications and excellent stone clearance outcomes.⁸ In another comprehensive review, Gou et al. performed a meta-analysis comparing nephroscopy and cystoscopy and found that nephroscopes provided higher stone-free rates and shorter operative times, particularly in cases involving larger or multiple stones.⁹

Despite its promise, this approach remains underutilized, particularly in rural or semi-urban healthcare settings. Most existing studies have been conducted in high-volume tertiary centers with access to advanced urological equipment.¹⁰ Additionally, while laser lithotripsy has become more widespread in high-resource environments, the cost and maintenance of laser systems remain significant barriers in many parts of the world.¹¹

In contrast, pneumatic lithotripsy systems are relatively inexpensive and widely available, making them suitable for low-resource settings. The procedure is also easier to perform, has a shorter learning curve, and is associated with fewer complications when performed by trained urologists.¹² The use of a nephroscope via the urethral route enhances visualization and fragment retrieval, particularly in male patients with prostatic enlargement or in those with complex bladder anatomy.¹³

Given these advantages, there is a growing interest in validating this technique across diverse patient populations. However, the current literature lacks robust prospective data from lower-income regions where this approach could have the most impact. This study aims to address this gap by evaluating the efficacy, safety, and complication profile of perurethral nephroscopy with pneumatic lithotripsy for large bladder stones in a real-world clinical setting.

Materials and Methods:

This was a cross-sectional study conducted at the Department of Surgery, Pabna Medical College Hospital, and various private hospitals in Pabna. The study period extended from February 2020 to January 2025. A total of 23 patients with large bladder stones were enrolled on this research.

Sample Selection

Inclusion Criteria:

- Patients diagnosed with bladder stones ≥ 3 cm in size.
- Adults aged 18 years and above.
- Both male and female patients.
- Patients consenting to undergo perurethral nephroscopy with pneumatic lithotripsy.

Exclusion Criteria:

- Patients with bladder tumors or urethral malignancies.
- Individuals with uncorrected coagulopathies.
- Patients with urethral strictures prevent nephroscope insertion.
- Previous failed endoscopic stone removal procedures.

Data Collection and Study Procedure: Data were collected through clinical evaluation, imaging studies (ultrasound, X-ray KUB), and operative findings. A standard protocol was followed where all patients underwent bladder stone removal using a 24Fr Karl Storz nephroscope perurethra and pneumatic lithotripsy under spinal anesthesia. Operative data, including duration, complications, and recovery outcomes, were recorded. All participants gave informed consent before enrollment, and confidentiality was maintained. The study was conducted following ethical standards.

Statistical Analysis: Statistical analysis was performed using SPSS version 25.0. Descriptive statistics, including means and standard deviations for continuous variables and frequencies for categorical variables, were used. Inferential analyses, including chi-square and t-tests, were conducted where appropriate. A p-value < 0.05 was considered statistically significant.



Figure 1: X-ray Showing Large Bladder Stone Pre-Treatment



Figure 2: Bladder Stone Fragments Following Pneumatic Lithotripsy

Results

This study evaluated the outcomes of treating large bladder stones using a perurethral nephroscope with pneumatic lithotripsy in 23 patients. The analysis covered demographic and clinical characteristics, operative and postoperative parameters, and complication rates.

Table I <i>Demographic and clinical characteristics (n=23)</i>			
Variable	Category	Frequency (n)	Percentage (%)
Mean age, years (SD)		52±12	
Sex	Male	20	87.0
	Female	3	13.0
Mean stone size, cm (SD)		4.1 (±0.6)	
Stone Count	Single	15	65.2
	Multiple	8	34.8

Table I shows the demographic and clinical characteristics of the study population. The mean age of patients was 52 years (±12), with a predominance of male patients (87.0%). The average stone size was 4.1 cm (±0.6). Single stones were observed in 65.2% of patients, while the remaining 34.8% had multiple stones.

Table II <i>Operative and postoperative outcomes</i>	
Parameter	Value
Operative time (minutes)	48.5 ± 12.0
Hospital stays (days)	1.6 ± 0.5
Catheterization duration (days)	1.4 ± 0.3
Urethral entries	1.2 ± 0.4
Auxiliary urethrotomy required	3 (13.0%)
Stone free rate	23 (100.0%)

Table II presents operative and postoperative outcomes. The mean operative time was 48.5 minutes (±12.0), and patients had a short hospital stay, averaging 1.6 days (±0.5). Catheterization lasted approximately 1.4 days (±0.3), and most procedures required a single urethral entry (mean 1.2 ± 0.4). Auxiliary urethrotomy was needed in 13.0% of patients. Notably, the stone-free rate was 100%.

Table III
Rate of complications (n=23)

Complication	Frequency (n)	Percentage (%)
Mild hematuria	3	13.0
Urinary retention	2	8.7
Fever (>38°C)	1	4.3
Urethral stricture	1	4.3

Table III describes the complications encountered. Mild hematuria occurred in 13.0% of patients, urinary retention in 8.7%, fever in 4.3%, and urethral stricture in 4.3%. No major complications or mortalities were reported.

Discussion:

This study demonstrated that treating large bladder stones using a perurethral nephroscope combined with pneumatic lithotripsy is highly effective, with a 100% stone-free rate and minimal complications. This aligns with findings from Channa et al., who reported similar outcomes using pneumatic lithotripsy with a nephroscope for large vesical calculi.⁸

The predominance of male patients (87%) in this study mirrors the gender distribution seen in prior research by Ener et al., who noted higher prevalence among males due to factors such as prostate enlargement and increased bladder outlet obstruction.² The average age of 52 years is also consistent with global epidemiological trends, where the incidence of bladder stones peaks in middle-aged and elderly populations.

Operative efficiency, marked by an average procedure time of 48.5 minutes, compares favorably with previous studies. For instance, Yalçın found mean operative durations ranging from 45 to 60 minutes depending on stone burden and surgical technique.¹³ The short hospital stay (mean 1.6 days) and rapid catheter removal further highlight the procedure's minimal invasiveness. Such outcomes were echoed by Karami et al., who observed that transurethral holmium laser lithotripsy also allowed for day-care management in many patients.¹⁴

Importantly, the complication rate in this study was low. Mild hematuria (13.0%) and urinary retention (8.7%) were the most common, with only one case each of urethral stricture and fever. These findings are congruent with those of Abedi et al., who observed minor complications in 10–15% of patients undergoing pneumatic lithotripsy, mostly self-

limiting.⁵ Likewise, Akdeniz et al. reported similarly low morbidity with pneumatic devices compared to laser systems.⁴

The need for auxiliary urethrotomy in 13% of cases reflects anatomical or technical challenges, particularly in patients with tight urethras or large stone burdens. This rate is modest and supports the procedural safety noted by Erçil et al., who documented urethrotomy rates between 10–20% in cases with complex anatomy.¹¹

Comparative literature supports the choice of pneumatic lithotripsy as a cost-effective and efficient modality. Iqbal et al. and Rehman et al. both showed pneumatic lithotripsy to be non-inferior to extracorporeal shockwave lithotripsy for ureteral stones, with better clearance for larger calculi.^{6,15} The same principle extends to bladder stones, where larger fragments respond better to direct fragmentation than remote shockwave application.

The use of a nephroscope through the urethra as opposed to the traditional cystoscope is another strength of this technique. Gou et al. conducted a meta-analysis showing that nephroscopes provided better irrigation, wider fields of view, and facilitated fragment retrieval in complex cases.⁹ Additionally, studies like Gupta et al. support the adaptability of nephroscopes for transurethral use, especially when combined with pneumatic energy sources.⁷

However, some challenges remain. Urethral trauma and instrumentation-related strictures, while rare, are potential drawbacks, especially in male patients with narrow urethras. Preventive measures such as gentle dilatation and limiting the number of urethral entries, as practiced in this study (mean 1.2 entries), are key to minimizing such risks.

This study adds value to existing literature by offering real-world evidence from a resource-limited setting, validating the utility of pneumatic lithotripsy with a nephroscope even outside tertiary centers. While laser technologies may offer finer fragmentation and lower recurrence in some studies, the cost-benefit ratio remains in favour of pneumatic systems in most low-income regions.

The findings support the widespread adoption of perurethral nephroscopy with pneumatic lithotripsy for large bladder stones. It combines clinical efficacy with logistical feasibility, particularly in developing countries where resource optimization is paramount.

Recommendations:

The study's limitations include a small sample size and a single-region setting, which may affect generalizability. Lack of long-term follow-up restricts assessment of stricture formation and recurrence. Future research should involve multicenter trials with larger cohorts and randomized comparisons with laser techniques. Establishing standardized protocols can enhance reproducibility. Wider adoption of this approach is recommended, particularly in settings lacking access to advanced lithotripsy technologies.

Conclusion:

The use of perurethral nephroscope with pneumatic lithotripsy is a safe, efficient, and minimally invasive method for managing large bladder stones. This technique achieved a 100% stone clearance rate with minimal complications and reduced hospital stay. Its application is especially advantageous in resource-constrained settings due to its cost-effectiveness and ease of use. The results strongly support this technique as a standard option for large vesical stones.

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Subvastus Approach for Total Knee Arthroplasty: Complete Quadriceps Sparing Technique

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Keywords: Subvastus approach, Quadriceps-sparing technique, Total knee arthroplasty (TKA), Minimally invasive surgery, Knee Society Score (KSS), Range of motion (ROM).

Abstract:

Background: Minimally invasive approaches are a more recent development, which aims at reducing damage to soft tissues. The subvastus or Southern approach to the knee had been described as early as 1929. This approach for primary total knee arthroplasty (TKA) preserves the integrity of the extensor mechanism and maintains the vascular supply to the patella. It provides excellent exposure of the knee joint with preservation of all peri-articular soft tissues. The benefits of the subvastus approach make it a valuable technique for primary TKA. This combination of advantages ensures rapid recovery, better knee range of motion and finally excellent patient satisfaction.

Aim of the study: The goal of this study is to compare the subvastus method to the usual medial parapatellar technique for total knee replacement in patients with osteoarthritis based on quadriceps function recovery in days after surgery.

Methods: We retrospectively reviewed case notes of 36 patients with osteoarthritis who had total knee replacements in satkhira medical college hospital and private clinics over the course of a period from August 2019 to August 2024. we evaluated all the cases regarding early postsurgical clinical outcomes (range of motion [ROM], pain on a visual analog scale, and Knee Society Score [KSS]). Preoperative quadriceps strength, BMI, and baseline demographics were all recorded from their initial pre-operative workup case notes. Starting on the first postoperative day, patients recorded first unassisted straight leg raise (SLR) was kept as the main determinant for muscle function. The data were evaluated to determine the quadriceps muscle function post TKR.

Result: When compared to the medial parapatellar approach, the quadriceps muscle function returns sooner with the subvastus technique. Patients in their sixties showed the highest improvement. Preoperative quadriceps strength has a major impact on muscle recovery after surgery.

Conclusion: The subvastus method to total knee replacement is linked to a faster recovery of quadriceps muscle strength, resulting in a shorter hospital stay and postoperative therapy.

Introduction:

Total knee replacement surgery begins with correct planning of both the incision and the exposure of the joint. Indeed, these are factors that are just as crucial to an optimal outcome as choosing the right implant, positioning the components, and balancing the ligaments. The best surgical approach in total knee replacement is still to be determined as none of the

existing approaches could prove its superiority in previous studies¹⁻³. First described in 1879 by von Langenbeck, the medial parapatellar approach on the inner side of the knee found early favor and it is regarded as the gold standard for which other approaches are compared¹⁻³. Hofmann reported on the quadriceps preserving subvastus approach in 1991². The subvastus approach to the knee joint has been

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described as an alternative to traditional approaches which involve a large incision with division of the quadriceps mechanism. The subvastus is a minimally invasive, muscle-sparing approach; it is truly “quadriceps-sparing.” Reported literature suggests that the utilization of this minimally invasive approach allows patients improved and quicker early recovery after total knee replacement surgery. Total knee arthroplasty³ is a successful operation for treating knee joint deterioration. Over the last three decades, this procedure has grown in popularity. Anterior midline incision with medial parapatellar arthrotomy is the most common skin incision for primary total knee arthroplasty. To gain access to the knee joint with patellar subluxation, a portion of the quadriceps tendon is incorporated in the arthrotomy. Alternative ways of exposure have been described to prevent patellofemoral problems and speed up the restoration of quadriceps function after surgery. In terms of subluxing the extensor mechanism laterally for knee exposure, the subvastus (“Southern”) technique varies from the medial parapatellar technique. Leave the extensor mechanism intact, according to proponents, results in faster restoration of quadriceps strength, retains greater vascularity in the patella, increases patient satisfaction while reducing postoperative pain, and reduces the need for lateral release. Hofman in 1991 popularized the subvastus approach for TKA, which first appeared in the German literature in 1929⁴. The goal of this study is to compare the subvastus technique to the usual medial parapatellar technique for total knee replacement based on quadriceps function recovery in days.

Materials and Methods:

This is a retrospective study carried out in Satkhira medical college hospital from January, 2019 to January, 2023. Data from patients who had complete knee replacements during that period was collected after clearance from the hospital. The study comprised patients of either gender between the ages of 50 and 70, with a BMI between 18.5 and 40 [measured as weight (kg)/height² (m²)], who were diagnosed with osteoarthritis and required a total knee replacement as a result. The sample size after applying the necessary criteria was 36 patients keeping an equal number of patients for standard

parapatellar and subvastus approach. Group A consisted of patients with subvastus approach and Group B included patients with medial parapatellar approach.

Inclusion Criteria

- Patients of either gender aged between 50 and 70 years.
- Patients with a body mass index (BMI) between 18.5 and 40, calculated as weight (kg)/height² (m²).
- Patients diagnosed with osteoarthritis requiring total knee replacement.
- Patients who underwent primary total knee replacement using either the medial parapatellar approach or the subvastus approach between January 2019 and January 2023 at Satkhira Medical College Hospital.

Exclusion Criteria

- Patients younger than 50 years or older than 70 years.
- Patients with BMI outside the range of 18.5–40.
- Patients with secondary causes of knee arthritis such as rheumatoid arthritis, post-traumatic arthritis, or infectious arthritis.
- Patients undergoing revision knee replacement or bilateral simultaneous total knee replacement.
- Patients with incomplete records or who could not be contacted during follow-up.

Ethical Considerations

Ethical approval was obtained from the relevant institutional review board of Satkhira Medical College Hospital before commencing the study. All patients provided informed consent prior to participation. Patients were informed that participation was voluntary, no incentives would be provided, and they were assured of anonymity and confidentiality throughout the study.

Surgical Technique

A midline skin incision is performed, and full thickness skin flaps are elevated. Deep fascia is divided proximally and medially to mobilize the medial skin flap further to define the vastus medialis obliquus (VMO) muscle up to its attachment to the

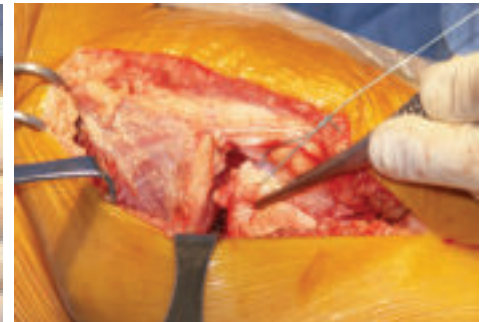
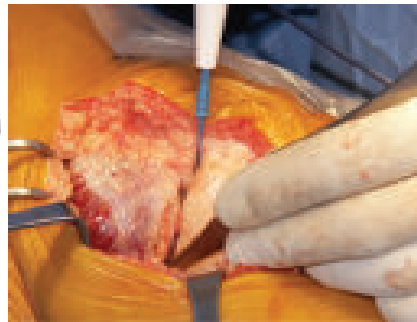
medial intermuscular septum. The arthrotomy is commenced at the attachment of the VMO to the medial intermuscular septum, dividing the capsular attachment and extended laterally to the supero-medial angle of the patella. Arthrotomy is then extended vertically and distally along the medial border of the patellar tendon terminating 1 to 2 cm medial to the tibial tuberosity. At this point, the VMO is reflected off the medial intermuscular septum up to the junction of middle third and distal third of the thigh. Care must be taken at this point to prevent inadvertent damage the femoral vascular structures. Following this, the infrapatellar fat pad and the lateral meniscus are incised; the proximal third of the patellar tendon is released off the proximal tibia. In the vast majority of cases, the above manoeuvres would be adequate to achieve a satisfactory exposure to carry out TKA.



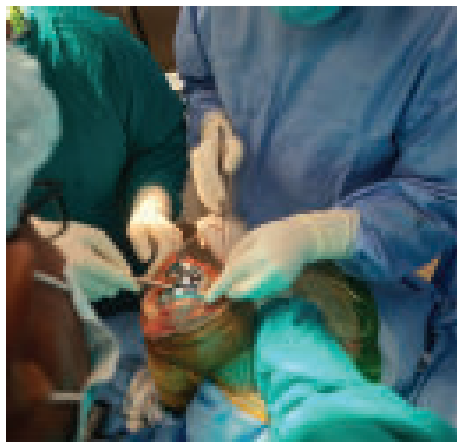
Total knee arthroplasty



Subvastus approach



Incision and Arthrotomy



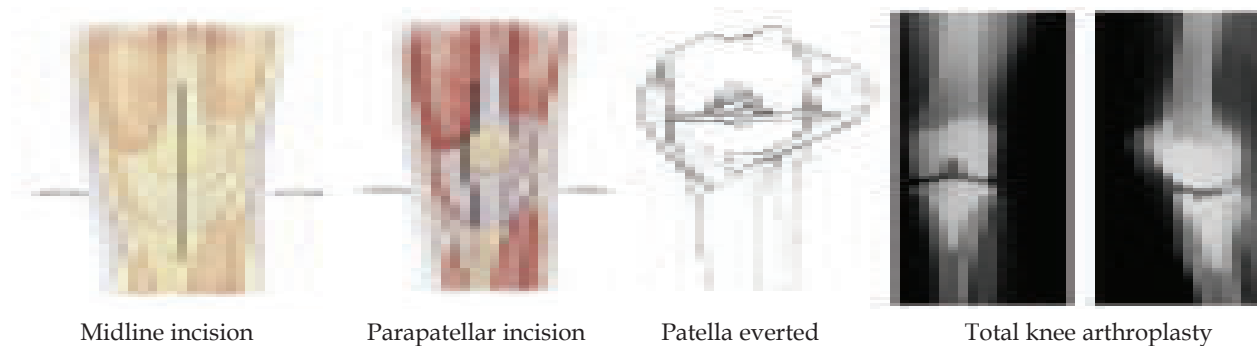
Implantation and cementation



Total knee replacement

Conventional median parapatellar approach:

1. standard anterior midline incision extending from a point 5 cm proximal to the apex of the patella to the tibial tubercle is made. 2. subcutaneous tissues are dissected 3. the capsule is entered through a medial parapatellar approach approximately 1 cm from the medial boarder of patella 4. Quadriceps mechanism is incised longitudinally to allow adequate patella eversion and sufficient knee flexion 5. Both femur and tibia are prepared for cementation 6. Implantation of both femur and tibia is completed 7. wound is closed with suture of the extensor mechanism.

**Data Collection Procedure**

Data were collected from the hospital records and from patients by phone calls during office hours at 3, 6, and 12 months post-operatively. All patients provided informed consent for participation. The patients were informed that participation is voluntary, with no incentives being offered, and were assured of anonymity and confidentiality.

Statistical Analysis

The SPSS 16.0 statistical programmed was used to analyses the data. The results were provided as mean $\pm$ standard deviation for straight leg raise in days and gender frequency/ %. Using the t-test to compare means, a statistical comparison of quadriceps function in days is done between the two groups. A P-value of less than 0.05 was considered significant. Stratification was done in regards to age, gender, quadriceps strength and BMI to see the effect of these on outcomes.

Results:

Subvastus approach provided satisfactory exposure in all knees. Base line demographic data of the patient who has undergone total knee arthroplasty by either medial Parapatellar (group-1) or subvastus approach also called minimal invasive surgery (MIS group-2). Regarding operative time subvastus group had more operative time with mean duration of surgery of 98.56 minutes, range between 60-140 whereas; the mean operative time was 72.60 minutes, range between 45 – 127 in medial parapatellar approach. There was statistically significant difference. Regarding to Blood loss there was no statistically significant difference between the two groups in terms of blood loss and

blood transfusions ($p > 0.05$). Measurement was taken in gram per decilitre from pre-operative period following 24 hrs after postoperative period. Pain was less in group-2 (subvastus approach). Post operatively pain was measured on day 1, and day 3 using visual analogue score (VAS). On day 1 in the medial parapatellar group 42.5 percent of patients had score of 0. Whereas in subvastus approach 60.20 percent had score of 0 on day 1 but the mean score was 1.8 and 2.1 respectively. On day 3, Medial parapatellar group had 15.5 percent of patients experienced pain score of 0 and in the subvastus group 36.2 percent of patients experienced pain score of 0. Mean pain score was 2.8 and 3.9 respectively. So, on day one there was no significant difference of pain score between the two groups and pain score on day 3 was significantly less in subvastus group when compared to medial parapatellar group (p value < 0.01). Regarding to Duration of stay in hospital Subvastus group 7.65 days had shorter duration of stay in the hospital, range between 4- 13 days than medial parapatellar group 9.50 range between 5 to 15 days. There was no statistically significant difference between two groups in terms of duration of stay ($p > 0.05$) and post-operative. The quadriceps was required to be elevated from the anterior surface of the femur in 95 cases. We were able to achieve improvement in flexion on addressing all the etiological factors; however, pie crusting of the quadriceps was required in one case. The mean preoperative flexion was 72° (range 40° – 90°) with a total ROM of 64° (range 36° – 90°). Postoperatively, knee flexion improved mean 38° ($P < 0.05$) which was significant as assessed by Student's t-t.

Table I
Preoperative parameter

Preoperative data	Age (years)	Gender	Weight	Body mass index (kg/m ²)	Preoperative hemoglobin (g/dL)	Preoperative knee society score	Objective knee society score	Preoperative ROM	Functional knee society score	Preoperative knee deviation	Preoperative knee angle
MIS Group	68.02 (8.14)	14 M 36 F	79.30 (14.20)	30.97 (5.25)	14.11 (1.13)	82.44 (19.16)	35.28 (11.90)	47.16 (12.10)	93.70° (16.74)	45 VR 5 VL	173.5° (3.51)
Standard Group	70.64 (7.88)	13 M 37 F	78.13 (7.50)	30.62 (3.42)	13.75 (1.00)	89.08 (31.55)	47.96 (15.02)	41.12 (20.70)	99.29° (13.26)	45 VR 5 VL	174.1° (4.34)
Significance (p)	0.102	0.822	0.912	0.693*	0.064*	0.093	0.465	0.436*	—		

Table II
Postoperative pain and recovery analysis

Postoperative pain and early recovery	Patients consumed analgesic 24 hours	Patients consumed opioids 24 hours	Patients consumed analgesic 48 hours	Patients consumed opioids 48 hours	Milligrams metamyazol per kilogram per patient 24 hours	Milligrams metamyzol per kilogram per patient 48 hours	Walking start (days)	Hospital stay (days)
MIS Group	20	2	41	1	11.1 (10.2)	25.98 (18.9)	2.68 (0.62)	8.3 (3.33)
Standard Group	35	11	36	9	25.9 (17.4)	29.04 (19.5)	4.47 (1.37)	8.4 (2.05)
Significance (p)	0.002	0.007	0.307	0.007	0.002† 95% CI (5.71–23.9)	0.568†	< 0.001* 95% CI (1.36–2.21)	—

Table III
Knee Society score functional results

Postoperative Knee Society score	KSS 1 m	Objective score 1 month	Functional score 1 month	KSS 3 months	Objective score 3 months	Functional score 3 months	KSS 12 months	Objective score 12 months	Functional score 12 months	KSS 3 years	Objective score 3 years	Functional score 3 years
MIS Group	131.83 (23.23)	69.31 (11.43)	62.52 (15.18)	173.03 (16.67)	84.09 (7.88)	88.94 (10.97)	181.60 (10.99)	86.98 (6.17)	94.62 (7.18)	182.42 (11.43)	87.38 (4.57)	95.04 (6.97)
Standard Group	111.63 (28.53)	67.85 (11.01)	43.78 (20.44)	151.00 (24.89)	77.20 (9.80)	73.80 (20.31)	172.71 (20.28)	82.37 (6.34)	90.34 (16.54)	172.52 (15.99)	82.27 (6.24)	90.25 (10.65)
Significance (p)	< 0.001 95% CI (30.5–9.8)	0.517	< 0.001 95% CI (25.8–11.5)	<0.001 95% CI (13.6–30.4)	<0.001 95% CI (3.3–10.4)	<0.001 95% CI (8.6–21.6)	<0.001 95% CI (2.42–15.3)			—		

Table IV
Knee ROM

Postoperative ROM	ROM 1 month	ROM 3 months	ROM 12 months	ROM 3 years
MIS Group	95.5° (12.43)	110° (10.92)	114.4° (6.97)	113.7° (3.46)
Standard Group	89.7° (15.99)	99.9° (13.07)	102.4° (10.65)	102.7° (9.57)
Significance (p)	0.049 95% CI (0.1–11.4)	<0.001 95% CI (5.3–14.88)	< 0.001 95% CI (8–15.1)	< 0.001 95% CI (7.8–16.3)

Discussion:

Total knee replacement surgery begins with correct planning of both the incision and the exposure of the joint. Indeed, these are factors that are just as crucial to an optimal outcome as choosing the right implant, positioning the components, and balancing the ligaments. Many knee procedures, nowadays, are routinely performed via arthroscopic or arthroscopic-assisted methods. However, knowledge of open surgical access to the knee remains vital for knee arthroplasty and cases where arthroscopy is not possible or practical. Controversy currently surrounds the optimal surgical approach for total knee arthroplasty (TKA). The best surgical approach in total knee replacement is still to be determined as none of the existing approaches could prove its superiority in previous studies¹⁻³. Minimally invasive TKA has been developed during the last decade with hundreds of scientific works related to these techniques. Unfortunately, few well-designed trials exist capable of providing conclusions of high evidence about the real benefits and complications of minimally invasive TKA⁵. This study was performed to provide a higher level of evidence in comparison of MIS with a conventional approach in TKA. We found patients treated by MIS TKA had less pain early after surgery, achieved and sustained better ROM, but did not experience clinically important greater blood loss, component malpositioning, longer hospital stay, or incidence of complications. In our opinion, it is more reliable to evaluate pain by painkiller intake. Finally, the variable of walking start day is not a validated measurement but provides an idea of faster recovery in the MIS Group. Other authors like Healy et al.⁶ and Berger et al.⁷ used similar nonvalidated measurements to demonstrate faster recovery in subvastus approach. Whereas the transfusion requirements did not show notable differences, the greater fall in hemoglobin from preoperative to 6 hours postoperatively and the greater drainage in the MIS Group have led us to conclude that the perioperative bleeding could be slightly higher in the MIS Group. Our results are in agreement with Boerger and colleagues³ who detected 10% more bleeding with the minimally invasive subvastus approach. However, Zanasi⁸ found no differences. Probably, the higher bleeding could be explained by the difficulty of making a perfect hemostasis after the components have been definitively placed and by the accumulation of blood under the vastus medialis

muscle. In our opinion, although drainage may be greater, the most clinically relevant point is that no differences existed in the rate of transfusion. Nevertheless, there is a tendency toward more bleeding with MIS surgery. Based on analgesic consumption, lower postoperative pain was detected in patients operated on by the minimally invasive subvastus approach. In our opinion, the use of the pain VAS presents several problems because the score would change depending on the moment it was applied in relation to the analgesic intake. Using the VAS of pain, Boerger and colleagues³ found less pain in patients operated on using the MIS technique. Zanasi⁸ and Lombardini and colleagues³ also detected less postoperative pain in the MIS Group. In our study, the early recovery was faster in the MIS Group compared with the standard approach. This is demonstrated by the earlier walking start and the greater ROM of the knee in the patients operated on using the MIS subvastus approach. On the other hand, the hospital stay showed no major differences. Although this fact may be surprising, Boerger and colleagues³, Zanasi⁸ and Kolisek and colleagues¹⁰ also found substantial differences in early knee flexion but not in hospital stay. In contrast, Lombardini and colleagues⁹ and Schroer and colleagues¹¹ found earlier hospital discharge with the minimally invasive subvastus approach. The application of rapid recovery protocols may accelerate the recovery of these patients and reduce the hospital stay^{2,12,13}. However, one should not forget that Healy and colleagues⁶ showed how an aggressive rapid recovery protocol was capable of reducing hospital stay and cost of TKA performed by the conventional approach as well. Matsueda et al.¹⁴ compared a group of total knee arthroplasty (TKA) patients with parapatellar approach and subvastus approach retrospectively at 6 months. There were no significant differences for range of motion, Knee Society Score (KSS), knee function scores, and stair-climbing ability. No differences were found in surgical time. Our subjective opinion is the minimally invasive subvastus TKA consumes a little more time in the placement of the prosthesis, but this time is recovered during closure. Probably, the skin-to-skin time measurement has hidden this subjective difference. This impression has been confirmed by Boerger and colleagues³ and Zanasi⁸, both of whom have detected longer duration for the MIS procedure measuring the surgical time from skin to prosthesis placement. Component

orientation was similar in both groups with no differences in outliers or any angles measured. All studies which involve minimally subvastus approach have detected correct component orientation without differences compared with standard approach^{7,12,15,17}. No differences were found in complication rates and, again, no previous report exists in which the complication rate was higher in the MIS Group^{7,15}. Functional results, both KSS and ROM, were substantially better in the MIS Group and were maintained until 3 years of follow-up. Our results are in accordance with most prior studies^{7,12,15,18}. We assume this better result can be attributed to less scar formation resulting from less dissection, including the conservation of all vastus medialis attachments. In contrast, Kolisek and colleagues¹⁰ did not find differences in KSS at 3 and 12 weeks. Bonnutti et al.¹⁹ have used an MIS technique successfully on more than 420 knees. Laskin has reported good results using a limited midvastus approach¹⁸. Tria and Cook²⁰ have published data using the medial parapatellar limited subvastus approach known as the quad-sparing approach. The first articles published comparing the different techniques and surgical approaches show slight differences in terms of the clinical results and complications associated with the learning curve for each technique. Using repeated-measures analysis of variance, the KSS and ROM development were studied. Although no differences were found in the KSS development between the groups, the ROM analysis showed the minimally invasive subvastus approach is capable of achieving and sustaining better knee ROM. In conclusion, we found the minimally invasive subvastus approach can provide advantages over conventional surgery in terms of postoperative pain and recovery, but not in terms of perioperative bleeding. When compared with traditional exposure, the minimally invasive subvastus approach did not increase surgical time, risk of component malalignment, or complication rate. The early and late functional results were substantially better with the minimally invasive subvastus approach compared with the conventional approach.

Limitations of the study: This study has several limitations. Being retrospective in nature, it relied on hospital records and patient-reported follow-up, which may introduce recall bias and incomplete data. The small sample size and single-center setting limit

the generalizability of findings. Follow-up was restricted to one year, preventing assessment of long-term outcomes. Additionally, the exclusion of patients with incomplete records may have introduced selection bias, while objective functional and radiological outcomes were not comprehensively evaluated.

Conclusion:

Implementing the subvastus approach during TKR surgeries, with subsequent preservation of the patellar attachment of the vastus medialis oblique muscle, allows for better tracking of the patella over the femur during surgery, resulting in a reduction in the necessity of performing lateral retinaculum release intraoperatively. The subvastus approach can result in improved long-term Knee Society scores and range of motion of total knee arthroplasty without increased risk of component malalignment, surgical time, or complication rate.

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Comparative Study between Blind Trocar Entry and Hasson Method in Laparoscopic Cholecystectomy: A Prospective Randomized Controlled Trial

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Abstract:

Background: Laparoscopic cholecystectomy (LC) is the standard treatment for symptomatic gallstones. The initial abdominal entry, critical to safety, employs either blind trocar entry (BTE) or the Hasson method. This study compares these techniques in 100 patients.

Methods: A single-center randomized controlled trial allocated 100 patients to BTE (n=50) or Hasson (n=50). Outcomes included operative time, complications (visceral/vascular injury, extraperitoneal insufflation), conversion rates, and hospital stay. Statistical analysis used t-tests and chi-square.

Results: Hasson had a longer mean operative time (47.5 ± 8.2 vs. 42.3 ± 6.5 minutes; $p=0.001$) but fewer major complications, such as Visceral injury (Hasson 0% VS BTE 4% $p=0.04$ and vascular injury Hasson 0% VS BTE 2%; $p=0.32$). BTE had higher visceral injury rates (4% vs. 0%, $p=0.04$). Hospital stay and conversion rates were comparable.

Conclusion: The Hasson method reduces complications at the expense of slightly longer operative time, advocating its use in high-risk patients.

Introduction:

Laparoscopic cholecystectomy (LC), first introduced in the 1980s, has revolutionized the management of symptomatic cholelithiasis and cholecystitis, becoming the gold standard due to its minimally invasive nature, reduced postoperative pain, and faster recovery compared to open surgery¹. Despite its widespread adoption, the initial entry into the abdominal cavity – a critical step in LC – remains a subject of debate, with visceral and vascular injuries during trocar insertion representing the most feared complications, occurring in 0.1–0.3% of cases but accounting for up to 30% of litigation claims in laparoscopic surgery². Two primary techniques

dominate clinical practice: the Blind Trocar Entry (BTE), a closed method relying on sharp trocar penetration without visual guidance, and the Hasson method, an open technique involving direct visualization and fascial suturing (Hasson, 1971). While BTE is favored for its speed and simplicity, the Hasson method is often reserved for high-risk patients due to its perceived safety. However, conflicting evidence regarding their comparative efficacy and safety necessitates rigorous evaluation to guide surgical practice.

The evolution of laparoscopic entry techniques reflects ongoing efforts to balance efficiency and safety. The Hasson method, introduced in 1971, was

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designed to mitigate entry-related complications by creating a controlled incision under direct vision, thereby reducing inadvertent organ injury (Hasson, 1971). In contrast, BTE employs insertion of a trocar to establish pneumoperitoneum rapidly, prioritizing operative speed—a factor particularly valued in high-volume surgical settings³. Proponents of BTE argue that modern optical trocars and standardized protocols have minimized its risks, while critics highlight persistent reports of bowel perforation, vascular injury, and retroperitoneal hematoma, especially in patients with adhesions or aberrant anatomy⁴. A Cochrane review by Jansen et al. (2018) concluded that open techniques reduce major vascular injuries but found insufficient evidence to favor one method universally, underscoring the need for patient-specific approaches⁵. This is further complicated by large-scale database studies, such as the analysis by Brunt et al. (2019), which reported that the choice of entry technique did not independently predict major bile duct injury, suggesting that surgeon experience may be a more critical factor than the method itself.⁶

Existing literature on entry techniques is marred by heterogeneity in study design, small sample sizes, and variable surgeon expertise. Retrospective analyses, such as the multicenter study by Slim et al. (2022), associated BTE with a 1.8% risk of visceral injury versus 0.4% for the Hasson method, but these findings were confounded by selection bias, as high-risk patients were more likely to undergo open entry⁷. Conversely, randomized controlled trials (RCTs) remain scarce, with most favoring BTE for shorter operative times but lacking statistical power to detect differences in rare complications⁸. For instance, a 2020 RCT by Li et al. reported comparable complication rates between BTE and Hasson in 200 patients but excluded individuals with prior abdominal surgery—a cohort representing 20–30% of LC candidates⁹. This exclusion is a significant limitation, as highlighted by a systematic review by Murji et al. (2021), which emphasized that a history of previous abdominal surgery is the single strongest predictor of intra-abdominal adhesions and thus a key variable in entry-related risk¹⁰. This gap in high-quality evidence perpetuates clinical equipoise, leaving surgeons to rely on institutional preferences rather than data-driven protocols.

The physiological and anatomical rationale for technique selection further complicates decision-

making. Patients with obesity, adhesions, or distorted anatomy due to inflammation are at heightened risk of entry-related injuries, as thickened abdominal walls or adherent bowel loops increase the likelihood of trocar misplacement¹¹. The Hasson method's direct visualization theoretically mitigates these risks, but its longer operative time and technical complexity deter some surgeons, particularly in emergency settings. Conversely, BTE's efficiency is offset by its "blind" nature, which may compromise safety in inexperienced hands. A 2021 meta-analysis by Ahmad et al. highlighted that 67% of visceral injuries during BTE occurred during a surgeon's first 50 cases, emphasizing the role of proficiency in complication rates⁴. This steep learning curve for closed techniques is a recognized issue in surgical training, necessitating structured simulation and supervision to achieve competency, as discussed in guidelines from the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES)¹². These findings align with the learning curve hypothesis, which posits that BTE's safety improves with surgeon experience, whereas the Hasson method offers consistent outcomes regardless of operator skill¹³. Furthermore, the adoption of optical entry techniques, where the trocar placement is visualized layer-by-layer, is presented by some as a modern hybrid solution that may mitigate the risks of truly "blind" entry, though its superiority is still under investigation¹⁴.

This prospective randomized controlled trial (RCT) aims to address these evidence gaps by directly comparing BTE and the Hasson method in a heterogeneous cohort of 100 patients undergoing elective or emergency LC. The primary outcomes include major complications (visceral/vascular injuries), operative time, and conversion rates, while secondary outcomes encompass hospital stay and surgeon-reported technical difficulty. By standardizing surgical protocols and including patients with prior abdominal surgery, this study seeks to provide granular insights into the risks and benefits of each technique across diverse clinical scenarios. The design is informed by calls from experts for more pragmatic RCTs that reflect real-world patient populations and surgical practices to generate truly generalizable results¹⁵.

The hypothesis driving this trial is that the Hasson method will demonstrate superior safety, particularly

in reducing major visceral injuries, albeit at the cost of prolonged operative time, whereas BTE will offer efficiency advantages without significantly compromising outcomes in low-risk patients. These findings aim to refine evidence-based guidelines, inform training programs, and optimize patient selection—a critical step toward minimizing preventable harm in laparoscopic surgery.

Materials and Methods:

Study Design: Prospective RCT (January 2022–December 2023) at a tertiary hospital. Ethics approval (IRB) and informed consent obtained.

Participants: Adults (18–70 years) with symptomatic gallstones, excluding prior abdominal surgery or bleeding disorders.

Randomization: Computer-generated blocks (1:1 allocation).

Interventions:

- **BTE:** blind trocar placement, 12-mm trocar insertion.
- **Hasson:** Mini-laparotomy, direct visualization, trocar placement.

Outcomes:

- Primary: Major complications (Clavien-Dindo $\geq$ II).
- Secondary: Operative time, conversion rates, hospital stay.

Statistical Analysis: SPSS v28.0; t-tests (continuous), chi-square (categorical), significance at $p < 0.05$.

Results:

Demographics: Groups were comparable in age (BTE: 48 ± 12 vs. Hasson: 50 ± 11), BMI (28 ± 4 vs. 27 ± 5), and gender (68% female both).

Operative Outcomes:

- Operative time: Hasson longer (47.5 ± 8.2 vs. 42.3 ± 6.5 minutes; $p = 0.001$).
- Preperitoneal insufflation (Hasson 2% vs. BTE%, $p = 0.002$)
- Complications: Hasson had fewer major events (2% vs. 10%; OR 0.18, 95% CI 0.04–0.85). Visceral injury occurred in 2 BTE cases (4%) vs. 0 Hasson ($p = 0.04$).
- Conversion rates: 2 BTE (4%) vs. 1 Hasson (2%; $p = 0.56$).

Table I
Comparative Outcomes.

Outcome	BTE (n=50)	Hasson (n=50)	p-value
Operative time (min)	42.3 ± 6.5	47.5 ± 8.2	0.001
Visceral injury	2 (4%)	0 (0%)	0.04
Vascular injury	1 (2%)	0 (0%)	0.32
Conversion	2 (4%)	1 (2%)	0.56
longterm port-site hernia	1.0%	1.0%	1.0

Discussion:

This prospective randomized controlled trial evaluates the safety and efficacy of two primary entry techniques in laparoscopic cholecystectomy – Blind Trocar Entry (BTE) and the Hasson method – in 100 patients. The results highlight critical trade-offs between operative efficiency and complication risks, offering evidence-based insights for surgical decision-making.

Operative Time

The Hasson method demonstrated a significantly longer mean operative time (47.5 ± 8.2 minutes vs. 42.3 ± 6.5 minutes; ($p^* = 0.001$), likely due to its open technique requiring meticulous fascial incision, direct visualization, and suturing of the port site. In contrast, BTE's rapid entry relies on trocar penetration without visual confirmation, aligning with prior studies reporting shorter setup times for closed-entry methods³. However, this time difference, while statistically significant, may lack clinical relevance in most settings, as both techniques fall within acceptable operative durations for laparoscopic cholecystectomy⁸.

Complication Rates

The Hasson method's superiority in safety was evident, with 0% visceral injuries compared to BTE's 4% ($p = 0.04$). This disparity underscores the inherent risks of BTE, where uncontrolled trocar insertion may inadvertently damage intra-abdominal organs, particularly in patients with adhesions or distorted anatomy. Vilos *et al.*, in their comprehensive review for the Society of Obstetricians and Gynaecologists of Canada (SOGC), highlighted that direct visualization during entry significantly reduces the risk of bowel and vascular injury compared to blind techniques¹⁶. Vascular injury rates, though numerically higher in BTE (2% vs. 0%), did not reach

statistical significance ($p^* = 0.32$), likely due to the study's limited sample size. These findings mirror meta-analyses by Jansen et al. (2018), which associated BTE with a 2–5% risk of visceral injury, versus <1% for open techniques⁵. Vascular injuries, though less common than visceral injuries, are often more immediately life-threatening. Molloy *et al.* reported that major vascular injuries occurred almost exclusively with closed techniques in their large audit¹⁷. The Hasson method's direct visualization minimizes blind thrusts, reducing catastrophic complications – a critical advantage in high-risk patients⁴.

Hospital Stay and Conversion Rates

Both groups had comparable hospital stays (1–2 days) and conversion rates to open surgery, suggesting that once safe entry is achieved, subsequent procedural outcomes are technique-agnostic. This aligns with systematic reviews indicating that entry-related complications, rather than the entry method itself, primarily dictate postoperative recovery⁷.

Novelty and Significance

While confirming established trends regarding operative time and visceral injury risk, this study provides specific, comparative quantitative data reinforcing the risk-benefit analysis surgeons must undertake. The finding of a *statistically significant and clinically meaningful* 4% absolute risk reduction (ARR) in major visceral injury with Hasson entry strongly quantifies the safety advantage. Furthermore, demonstrating that this safety benefit does not come at the cost of longer hospitalization or higher conversion rates is practically significant. It clarifies that the primary “cost” of enhanced safety is confined to the operative duration.

This reinforces the **practical implication** that the Hasson technique should be strongly considered, if not preferred, in contexts where minimizing severe complications is paramount. This is especially critical for:

- **High-risk patients:** Those with obesity (where preperitoneal placement is more likely), history of multiple prior abdominal surgeries, known or suspected periumbilical adhesions, or abdominal wall hernias.
- **Training environments:** Where trainee involvement in initial entry might increase the risk associated with blind techniques

- **Procedures with inherently higher complication consequences:** Such as oncology surgery where bowel injury could delay adjuvant therapy.

The comparable conversion rates also suggest that concerns about the Hasson technique leading to a less stable port site or more gas leakage impacting the feasibility of laparoscopy are unfounded in experienced hands.

- **Limitations and Methodological Considerations**
Interpretating these results requires acknowledgment of several limitations:
- **Study Design:** The analysis appears retrospective (based on the phrasing “had” and comparison groups), introducing potential biases in patient selection, data collection, and unmeasured confounding factors. A prospective randomized controlled trial (RCT) would provide stronger evidence.
- **Single-Center Experience:** Results may be influenced by the specific surgeons' expertise, patient population demographics, and institutional protocols. Generalizability to other settings may be limited.
- **Sample Size:** While sufficient to detect differences in operative time and visceral injury, the sample size may have been underpowered to detect a statistically significant difference in vascular injury rates (2% vs 0%) or rarer complications. A larger multi-center study would enhance the precision of estimates for less frequent events.
- **Lack of Standardization within BTE:** “Blind Trocar Entry” (BTE) encompass direct trocar insertion without prior pneumoperitoneum. The specific BTE technique(s) used and their individual complication rates are not detailed, potentially masking variations within this group. Studies often show differences even among closed techniques.
- **Definition and Ascertainment of Complications:** Clear definitions of “major complications,” “visceral injury,” and “vascular injury” are crucial. Retrospective data might miss minor injuries or inaccurately classify events. Standardized definitions (e.g., Clavien-Dindo classification) would strengthen future work.
- **Operator Experience:** Surgeon experience and volume with each technique significantly impact

outcomes. This factor was likely not controlled for in this analysis.

Despite these limitations, the clear signal regarding visceral injury and operative time differences is robust and aligns with the broader evidence base.

Future Research Directions

Building upon these findings, future research should focus on:

1. **Prospective RCTs:** Conducting well-designed, adequately powered RCTs comparing Hasson versus specific BTE techniques (e.g., Veress-first vs. Direct Trocar Insertion) in diverse patient populations (low vs. high risk) and surgical specialties. Primary outcomes should include major entry-related complications (visceral, vascular), operative time, and patient-centered outcomes (pain, recovery).
2. **Cost-Effectiveness Analysis:** Evaluating the true economic impact, balancing the costs associated with longer operative time against the costs of managing major complications (which are substantial).
3. **Risk Stratification Models:** Developing and validating predictive models to identify patients who derive the greatest absolute benefit from Hasson entry versus those where BTE might be acceptably safe, optimizing resource utilization and patient safety.
4. **Training and Simulation Studies:** Investigating the learning curves for both techniques and developing optimal simulation-based training modules to minimize complications, especially for trainees learning BTE methods.
5. **Long-term Outcomes:** Assessing potential long-term differences such as port-site hernias, which may theoretically differ between techniques requiring formal fascial closure (Hasson) and those not always requiring it (small trocar sites).

Conclusion:

This comparative study reaffirms that the choice between **blind trocar entry (BTE)** and the **Hasson method** in laparoscopic cholecystectomy hinges on balancing operative efficiency against patient safety. While BTE reduces entry time and streamlines workflows, its inherent blind nature elevates risks of vascular injury and preperitoneal insufflation, particularly in high-risk populations. Conversely, the

Hasson method's controlled, visual approach minimizes catastrophic complications, making it preferable for obese patients or those with prior abdominal surgery. Surgeon expertise significantly influences BTE outcomes, underscoring the need for structured training to mitigate risks. Ultimately, surgical teams must prioritize patient stratification, institutional resources, and operator experience when selecting an entry technique.

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Outcome of Rubber Band Ligation in Treatment of Hemorrhoids: A study of 50 Cases

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Keywords: Laparoscopic cholecystectomy, Hasson technique, Blind Trocar Entry (BTE), Laparoscopic entry complications

Abstract:

Background: Hemorrhoids are important today due to rising sedentary lifestyles, poor diets, and stress, leading to increased cases, healthcare costs, and demand for awareness and effective treatments.

Objective: My study has a goal to analyze the success of rubber band ligation in hemorrhoids of grade I, II, III, to analyze their complication and to see if all symptomatic hemorrhoids should be treated with band ligation at first visit

Methods: A prospective and descriptive study was designed for patients who came to OPD of Chittagong Medical College Hospital from July 2007 to June 2008. Patients having large 1st degree hemorrhoids, 2nd degree and early 3rd degree hemorrhoids were treated.

Results: Rectal bleeding was the most common symptom (100%). Anoscopy showed 6% first degree, 86% second degree and 8% third degree hemorrhoids. Information on presenting symptoms, number of bands applied, response to therapy, complications encountered, number of sessions needed to improve the symptoms, requirement of analgesics, follow-up of the patients, subsequent therapy were documented. Supplementary information was obtained over telephone follow-up. Outcome was categorized as success or failure in which success has been defined as permanent relief of symptoms within follow-up periods. Improvement in symptomatology means rare manifestation of bleeding (< 1 month). Failure has been defined as decrease but no improvement of symptoms. In this study, 88% patient succeeded, 6% improved and 6% failed. 16% patient had bleeding during defecation < 7 days, 8% patient complaints bleeding > 7 days. Recurrence observed in 2% patients. 38% patients required no analgesics. Among the 62% patients who required analgesics 36.8% required for up to 24-hours, 47.37% required for 24-48 hours and 3- patients needed for > 48 hours. All patient attended first follow-up at 7th day, 14% missed second follow-up at 6 weeks and 16% missed third follow-up at 6 months.

Conclusion: Rubber band ligation is a quick, simple procedure requiring no anesthesia, in absence of anorectal pathologies other than hemorrhoids. Though it has some minor complications and chance of recurrence, it is considered as a safe and effective procedure for symptomatic hemorrhoids.

Keywords: Rubber Band Ligation, Hemorrhoids.

Introduction:

Hemorrhoids are enlarged vascular cushions within the anal canal¹. Everybody has anal cushions composed of blood vessels, smooth muscle (Treitz's muscle) and elastic connective tissue in the

submucosa. They are located in the upper anal canal from the dentate line to the anorectal ring (puborectalis muscle)¹. Hemorrhoids result from sliding downward of anal cushion due to disruption of anchoring and flattening action of Treitz's muscle and its richly

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intermingled elastic fibres. Increased understanding of the anatomy of hemorrhoids has led to the development of new procedures to treat them. Initial medical management is recommended for all except the most advanced cases. Dietary alterations including eliminating constipating foods (e.g. cheese), addition of bulking agents, stool softeners and increased intake of liquids are advised. It is often beneficial to change daily routine by adding exercise².

Treatment depends on degree of hemorrhoids. 1st and 2nd degree hemorrhoids generally respond to medical treatment. Non-surgical methods of treatment are sclerosant injection, Barron rubber band ligation, cryosurgery, larks procedure, laser hemorrhoidectomy and infrared coagulation. Hemorrhoids that fail to respond to medical management may be treated with rubber band ligation, injection sclerotherapy, photocoagulation, cryosurgery, excisional hemorrhoidectomy³.

Among the surgical options for intractable prolapsed hemorrhoids, formal hemorrhoidectomy now competes with stapled hemorrhoidopexy. Over the past few decades, increasing interest has developed in the use of minor procedures for the treatment of piles, because with the classical method of hemorrhoidectomy the patient must remain in hospital for several days at least, there is some degree of discomfort which is not infrequently severe, and following discharge from hospital, the patient has to remain off work for some time. In 1954, Blaisdel described an instrument for ligation of internal hemorrhoids as an outpatient procedure. In 1962, Barron modified this instrument and presented two series reporting excellent results. Any individual who has hemorrhoids manifested by bleeding, prolapse, or both is a candidate for this procedure. No anesthetic is required, but the rubber band must be placed on an insensitve area usually at or just above the dentate line. Several treatments spaced over 3-4 weeks interval may be required depending on how many pile sites must be eliminated to alleviate the symptoms. In our country, a great percentage of the population is uneducated. Those patients suffering from hemorrhoids seek advice from unauthorized persons who treat hemorrhoids by different methods even with application of corrosive agents which are rather harmful. Those patients who are afraid of operation think treatment easier to the traditional village doctors, many of whom express themselves as piles specialists^{4,5}.

If simple treatment for hemorrhoids like rubber band ligation as an outpatient basis without anesthesia made available to the patients, they will be more interested to take scientific treatment rather than to be maltreated by unauthorized persons. Due to the fact that the intensity of hemorrhoidal complaints may rapidly change, also numerous therapeutic approaches of minor effectiveness are considered as helpful remedy, however, the advantage of Barron band ligation is not seriously doubted. This is a small scale study, the purpose of which is to assess the outcome of treatment with rubber band ligation, follow-up of the patients to see the need of further treatment. Rubber band ligation has additional advantage of not requiring hospital stay or anesthesia and is therefore considered to be the most appropriate method of treatment for 2nd degree hemorrhoids⁶.

Materials and Methods:

This study was carried out in Department of Surgery, Chittagong Medical College Hospital, Chittagong, Bangladesh.

Study was done from July 2007 to June 2008 (1 year)

This study included 50 patients with hemorrhoids in the hospital within the period of study. Cases were selected from both outpatient and inpatient departments who were considered to be suitable for band ligation. 50 consecutive patients, Non-randomized purposive sampling. Patients having symptomatic hemorrhoids attending at surgery outpatient department of Chittagong Medical College Hospital from July 2007 to March 2008 were examined and those patients were selected who were considered suitable for banding. Five cases were selected from in patient department of surgery who were admitted for treatment of symptomatic hemorrhoids. Four patients having hemorrhoids with severe anemia were selected for this study. They got admitted because they also needed blood transfusion. Total 9 patients were treated as indoor patients. The rest 42 cases were treated as outpatients who left hospital within 2-4 hours after the procedure. They were advised to come for follow up at 6th day, 6th week and 6th month.

All patients were clinically examined and routine investigations were done before the procedure.

Before treatment it was confirmed that there was no serious associated disease in the rectum or anal canal. After proctoscopy, cases were selected for rubber band ligation who were free from anorectal pathologies other than hemorrhoids.

The following cases were excluded from the study:

1. Thrombosed or prolapsed hemorrhoids
2. External hemorrhoids
3. Associated skin tag or rectal prolapse
4. Patients of hemorrhoids with anal fissure
5. Immunocompromised patients

Results:

Table-I

Sex Distribution of the patients (n=50)

Sex	No. of patients	Percentage(%)
Male	34	68
Female	16	32
Total	50	100

The table shows that among the selected 50 cases, 34 were male and 16 were female.

Table-II

Age Distribution of the patients (n=50)

Age group	No. of patients	Percentage (%)
<30years	14	28
31-40years	21	42
41-50years	9	18
51-60years	4	8
>60years	2	4
Total	50	100

The table shows that most of the patients (21) were between ages 31- 40 years. 9 patients belonged to age group 41 - 50 years and 4 patients belonged to age group 51-60 years. Only 2 patients were above 60 years age and 14 patients were below 30 years.

Table-III

Clinical presentation (n=50)

Presenting Symptoms /Signs	No. of patients	Percentage (%)
Perrectal bleeding	50	100
Discharge	8	16
Prolapse during defecation	43	86
Anemia Mild	29	58
Moderate	6	12
Severe	2	4

The table shows that all patients presented with per rectal bleeding. Discharge was present in 16%

patients and 11% had prolapse in addition to bleeding. Total 74% patient presented with anemia (mild anemia 58%, moderate anemia 12% and severe anemia 4%).

Discussion:

Rubber band ligation has become a popular method of treatment for internal hemorrhoids^{12,13,14}. The exact incidence of hemorrhoids is difficult to estimate as many people are reluctant to seek medical advice for various personal, cultural and socio-economic reasons, but epidemiologic studies report a prevalence varying from 4.4% in adults in the United States to over 30% in general practice in London^{15,16}. Symptoms vary with conditions like repeated straining, changes in diet or work pattern, pregnancy. Sufferers may undergo periods of relapse and remission. Hemorrhoidal bleeding is bright red, prolapse occur with a bowel movement and is associated with an uncomfortable sensation of fullness and incomplete evacuation. Soiling may occur in 3rd and 4th degree hemorrhoids as a result of impaired continence or production of mucous discharge^{7,8,17}.

In this study, all patients presented with bleeding per rectum. Many of them had prolapse during defecation (86%) and with perianal discharge (16%). Anemia due to hemorrhoidal bleeding responded to treatment. I found in my study 74% patient presented with anemia. 58% were mildly anemic, 12% moderately anemic and 4% presented with severe anemia as due to late presentation. Duration of symptoms before 1st attempt of rubber band ligation was various. 18% patients came with symptoms for 1 month, 42% within 2 to 6 months, 26% within 6 months to 1 year and 14% presented with symptoms more than 1 year. Proctoscopic findings of the patients on present series selected for rubber band ligation was 1st degree hemorrhoids^{6,18}, 2nd degree hemorrhoids 86% and 3rd degree hemorrhoids 8%. Before treatment, it was confirmed that there were no serious associated disease in the rectum or anal canal. After proctoscopy, cases were selected for rubber band ligation who were free from anorectal pathologies other than hemorrhoids and degree of hemorrhoids were considered to be suitable for banding. 50 patients underwent rubber band ligation in this study. Out of them, 20 patients were treated in a single session. 23 patients needed two sessions and 4 patients needed three sessions to improve symptoms. 88% patients

had successful results and no further treatment required. 6% patients required further medical treatment (one patient developed anal fissure, improved by application of 0.2% GTN, 2 patients improved by NSAID and antibiotic), 3% patients showed no improvement and treated surgically afterwards. David M. Steinberg and H. leugois¹⁸ conducted a study in proctoscopic clinic, Birmingham and found a success of 89% with rubber band ligation. 2% patients required further surgical treatment and 9% improved with medical management. Result from this present series is similar to good efficacy of rubber band ligation observed in series by Mr. PC Gartell, RJ Sheridan and FP. McGinn¹⁹. They did rubber band ligation of 106 patients and after follow-up successful result observed in 89% patients. F. Greca, MM Hares and colleagues²⁰ showed a symptomatic result in 82 patients after a 12 month follow-up. 24.64% patients were symptom free and complication recorded in 6.9% patients, 3.6% needed hospital admission. The present study showed some complications. 2% patients developed anal fissure, 6% had temporary prolapse of hemorrhoids, 5.26% got band dislodgement. V. Arabi and colleagues showed immediate complication of pain and bleeding in 27% cases.

In this series, 16% patient complained of pain and 24% had bleeding. For pain relief, analgesic requirement was maximum 48 hours. Only 3 patients needed NSAID for more than 48 hours.

John A Murie et al showed a study of 50 patients undergone rubber band ligation. The procedure was painless in 10% patients and produced pain for > 48 hours in 15 patients. In this study, the procedure was painless in 62% patients and produced pain in 38% patients. 31 patients needed no analgesics and 19 patients needed analgesics. My study got similar result (in case of pain during and after the procedure) as study conducted by FC Cheng, DW. Shum and GB Ong¹¹. They showed rubber band ligation was painless in 26 patients out of 30.

Conclusion:

Rubber band ligation should be considered as a preferred treatment for 2nd degree and selected cases of 3rd degree hemorrhoids due to its effectiveness, cost benefit and short term morbidity. It offers the possibility of a definitive, ambulatory with least risk solution to without necessity of hospitalization and

anesthesia, repeatable in the time and with minimum percentage of complications. Surgery may be reserved for the most severe cases and external hemorrhoids. Though it has some failure rates, options for further treatment remain open. Thus, it may be considered first treatment as office procedure. In this study, low rate of major complications justify this method for the treatment of symptomatic hemorrhoids.

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Head- Neck Cancer Burden in Bangladesh

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Introduction:

Cancer is a deadly name for resource constrain developing country like Bangladesh. It is not just a killer; it tells a lot of human stories- which comprises with fear, cry, depression, financial crisis, love, care, deep sorrow and happy moments of cure.

Cancer is the first or second leading cause of premature death (i.e. at ages 30-69 years) in 134 of 183 countries, and it ranks third or fourth in an additional 45 countries.¹

Globally in 2020, every 6 deaths include 1 cancer patient and number of deaths by cancer was 10 millions. It may be increased to 15 millions by the next decade. Death of two-third cancer patients in the developing countries.²

In Bangladesh 114 persons per lac is suffering from various cancer. In an unpublished data from Bangladesh, about 55 persons per lac affected by Head-Neck Cancer. Approximately 20 lacs cancer patient in Bangladesh. Newly affected are 53 person per lac. 2 lacs affected in every year and about 1 lac died of cancer in every year. In this country 12% death due to cancer. Daily death about 273 in Bangladesh. According to study, there is a definite risk of it to be doubled by upcoming three decades.³

Cancer Types:

In human body, there are about 100 trillion cells. Uncontrolled and uncoordinated proliferation of cells makes cancer. About 200 different types of cancer may affect human being. 1 out of 2 people affected by cancer in his lifetime. Male are two times affected than female. 3 out of 5 ignore their symptoms of cancer.⁴

What are the Head- Neck Cancers?

There are at least 30 types of cancer that affects head and neck regions are called collectively Head- Neck Cancers.

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Table-I

Anatomical subsites of the head and neck based on ICD-10

Main Site	ICD-10 code
Malignant neoplasms of lip	C00
Malignant neoplasm of base of tongue	C01
Malignant neoplasm of other and unspecified part of tongue	C02
Malignant neoplasm of gum	C03
Malignant neoplasm of floor of mouth	C04
Malignant neoplasm of palate	C05
Malignant neoplasm of other and unspecified parts of mouth	C06
Malignant neoplasm of parotid gland	C07
Malignant neoplasm of other and unspecified major salivary glands	C08
Malignant neoplasm of tonsil	C09
Malignant neoplasm of oropharynx	C10
Malignant neoplasm of nasopharynx	C11
Malignant neoplasm of piriform sinus	C12
Malignant neoplasm of hypopharynx	C13
Malignant neoplasm of other and ill-defined sites in the lip, oral cavity and pharynx	C14
Malignant neoplasm of nasal cavity & middle ear	C30
Malignant neoplasm of accessory sinuses	C31
Malignant neoplasm of larynx	C32
Malignant neoplasm of other and ill-defined sites	C76

ICD-10: International classification of Diseases-Tenth revision

Head-Neck Cancer Scenario:

There are 4 different types of head neck cancer out of top 10 cancer internationally. According to data, 33 head neck cancer patient out of 100 male cancer patient and 11-13 head neck cancer patient out of 100 female cancer patients. Head Neck cancer patients mostly affecting developing countries.⁴

According to various statistics collectively various head-neck cancers are the leading cancer in Bangladesh. To understand the scenario some facts should be included into the consideration. In Bangladesh there is no complete cancer registry. For this reason, it is difficult to conclude accurately on highest burden of cancer type. There is a published report by National Institute of Cancer Researches and hospital (NICRH) (2015-2017) highest affected cancer was lung cancer (26.1%) in male and breast cancer (30.4%) in female and combined lung cancer 16.6%.⁵ In this report Head- Neck cancer components are shown separately.

Top listed 10 cancers of male shows 4 are head- neck cancer. 2 out of 4 are fully categorized as head- neck cancer and rest 2 out of 4 are partly categorized as head- neck cancer. Again, Top listed 10 cancers of female shows 3 are head- neck cancer. 1 out of 3 is fully categorized as head- neck cancer and rest 2 out of 3 are partly categorized as head- neck cancer. So, summation of all component of head-neck cancer of this list will go to near highest (Table-I).

Moreover, most of thyroid cancers are not included in this report. Because of thyroid cancer after surgery, Radioactive Iodine Ablation therapy is the treatment of choice. Only few thyroid cancers are reported to NIRC for conventional radiotherapy and etc. International study shows almost half of the

population harbors Thyroid disorders/ nodules. Almost 10% of thyroid nodule may affected by thyroid cancer. Differentiated Thyroid cancers are exclusively treated by surgery and Radioactive Iodine Ablation therapy. Radioactive Iodine Ablation therapy is given by various institutes of nuclear medicine all over the country. So, Thyroid cancer patients are not reported to NICRH and not included their published report.

In a published report from National institute of nuclear medicine and applied sciences (NINMAS) shows about 2500 Thyroid cancer patients reported annually in all nuclear medicine Centre of Bangladesh. Again, all Thyroid cancer patients are not coming here as because all patients usually not required RAI therapy especially early differentiated thyroid cancer or not willing to take RAI Therapy in spite of offering and explaining about the necessity of it.

Very recently there is an 'Evidence from population-based cancer registry' unpublished report named "Distribution of Cancers in Bangladesh" studied by Epidemiology division of Department of public health and informatics of Bangladesh Medical University (BMU). The study was conducted from July 2023 to ongoing at Hossainpur upazila, Kishoreganj. It aimed to find out the distribution of cancers among Bangladeshi population.

201,668 participants of 46,631 family have been included in this study. Number of prevalent cases was 106 cancer patient / lac. This study reveals top 5 cancers among male Larynx-13.2%, stomach-10.2%, Lip, Oral Cavity-8.8%, Esophagus-7.4%, Bronchus and lung-7.4%. and top 5 cancer among female Breast-35.4%, Cervix uteri- 12.3%, Lip and Oral Cavity-10.8%, Thyroid Gland-7.7%, Ovary-4.6% (Table-II).⁶

Table -II
Top 10 Cancer attending NICRH in 2015-2017

Men	Percentage	Women	Percentage	Both sexes	Percentage
Lung	26.1	Breast	30.4	Lung	16.6
Oesophagus	14	Cervix	16.7	Breast	14.1
Stomach	5.7	Lung	5.4	Cervix	7.7
Liver	5.1	Rectum	3.8	Oesophagus	4.5
Lymphoma	2.7	Cheek/Buccal Mucosa	3.2	Stomach	3.9
Rectum	3.3	Oesophagus	3	Liver	3.5
Bladder	4.1	Gall bladder	2.5	Lymphoma	3.3
Tongue	2.1	Stomach	2.4	Rectum	3
Larynx	2.2	Liver	2.3	Cheek/ Buccal mucosa	2.5
Blood	0.6	Lymphoma	2.1	Gall bladder	1.4
	65.9		71.8		60.5

NICRH=National Institute of Cancer Research Hospital

Table- III
Top 5 cancer distribution: study of DPPI of BMU-2024

Male	Percentage	Female	Percentage
Larynx	13.0	Breast	36.4
Stomach	10.4	Cervix Uteri	11.1
Bronchus and Lung	8.7	Lip, Oral Cavity	10.1
Lip, Oral Cavity	7.0	Thyroid gland	7.1
Esophagus	6.1	Ovary	5.1

DPPI= Department of Public Health and informatics

In both male and female 2 out of top 5 cancers are Head-Neck Cancer.

Table- IV
Top 10 most frequent cancers by both sex: study of DPPI of BMU-2024

ICD 10 Code	Type	Percentage
C 50	Breast	16.8
C 01-06	Lip, Oral Cavity	8.4
C16	Stomach	7.0
C32	Larynx	7.0
C53	Cervix Uteri	5.1
C34	Bronchus and Lung	5.1
C15	Esophagus	4.7
C18	Colon	4.2
C73	Thyroid Gland	3.7
C77	Lymph Nodes	3.7

In top ten cancer list lip, Oral Cavity, Larynx, Thyroid gland cancers are exclusively managed by Head-Neck surgeon. Esophagus and Lymph nodes are also managed by Head-Neck surgeons partly.

So, by considering all the facts it is revealed that combination of all head neck cancers will be highest among all the cancers.

Treatment facilities in Bangladesh

Cancer is the surgical disease. Few dedicated head-neck surgeons are working in the background of increasing demand.

First Head & Neck Surgery Division established under the department of Otolaryngology at BSMMU on 06/12/2010.

The first teletherapy (cobalt 60) machine was installed at a private hospital named Kumudini Hospital at Mirzapur in 1953.⁷

Now approximately 16-18 cancer centers are in operation with the facilities of EBRT where actual

demand about 200 according to WHO based on population.

Medical treatment of cancer is suitable for few Head-Neck Cancers. Mostly they are not curative, costly and a lot of side effects.

Sufferings of Head-Neck cancer patients in Bangladesh

Sufferings of Head - Neck cancer patient in Bangladesh mostly due to 4 reasons

Advanced presentation

Insufficient treatment facilities

Absence of referral system

Absence of feasible, affordable, and cost-effective treatment

What should we do!

Awareness builds up to all levels. Risk factor should be isolated and understandable to common population. Stop exposure from harmful risk factors. Cessation of all habits that may initiate cancer. Preventive steps should be taken to avoid Head-Neck cancer. Educate the common population about Head-Neck cancer. Regular Screening program for early detection of Head-Neck Cancer. Early diagnosis may cure almost all head-neck cancers. Regular physician education is essential to keep them updated. Outcome of treatment regularly monitored and audited. Survived patients carefully and regularly followed up.

Some preventive measures are reflecting in the slogan of World Cancer Day.

“Close the care gap”-Slogan of World Cancer Day-2022-2024

‘United by Unique’-United in our message, Unique in our stories- Slogan of World Cancer Day-2025-2027 Bangladesh with global partners in Head-Neck Cancer

Bangladesh is a member of International Federation of Head and Neck Oncologic Societies (IFHNOS) and Asian Head Neck Societies (AHNS). World Head Neck Cancer Day (July 27) are celebrating every year in Bangladesh together with 55 Head-Neck Societies, 51 Countries and UICC.

Conclusion:

Head Neck Cancer is one of the top-ranking cancers in Bangladesh and Globally. It should be appropriately addressed in policy making level. Treatment facilities should be increased. Manpower should be appropriately trained. Dedicated personnel are required to face the challenge of increased head-neck cancer burden. Awareness program should be observed comprehensively and continuously more focused to remote areas.

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