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Evaluation of the current status and proposals for measures to improve the quality of diagnosis and treatment of anorectal and pelvic floor conditions at bat Xat district general hospital

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Abstract

Background: Anorectal and pelvic floor disorders are highly prevalent, accounting for a substantial proportion of surgical cases at primary-level hospitals. However, public awareness and the capacity for specialized diagnosis and management at the grassroots health-care level remain limited.

Objectives: To assess the current practices in the diagnosis and treatment of anorectal and pelvic floor disorders at Bat Xat District General Hospital, and to propose measures for improving the quality of specialized care.

Methods: A cross-sectional descriptive study was performed by retrospectively reviewing the medical records of all surgical cases in the Department of Surgery at Bat Xat District General Hospital from March to April 2025.

Results: Over two months, 103 surgeries were performed, including 56 digestive cases. Of these, 94.64% involved anorectal or pelvic floor disorders: appendicitis (31), hemorrhoids (15), anal fistulas (2), and inguinal hernias (5). Techniques included TND's vertical ligation mucopexy for hemorrhoids, fistulotomy with seton for high transsphincteric fistulas, Bassini repair for hernias, and laparoscopic appendectomy.

Conclusion: Anorectal and pelvic floor disorders account for a high proportion of surgical cases at Bat Xat District General Hospital. Techniques such as vessel-ligation mucopexy for hemorrhoids, fistulotomy with seton placement, Bassini hernia repair, and laparoscopic appendectomy have been implemented effectively; however, adoption of methods such as TAPP and Lichtenstein repairs remains limited.

Recommendations: Enhance patient awareness, particularly concerning anorectal disorders. Develop and standardize diagnostic and treatment protocols for commonly encountered conditions. Consolidate currently effective surgical techniques and progressively introduce new methods to further improve treatment quality.

Keywords: Anorectal and pelvic floor disorders; Primary-level hospital; Vessel-ligation mucopexy; Seton; Inguinal hernia

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1. Introduction

Anorectal and pelvic floor disorders constitute a highly prevalent group of conditions that significantly impair patients' quality of life. In Vietnam, hemorrhoids are the most common, affecting 34.7% to 55% of the adult population, followed by anal fistula, which accounts for 25% of anorectal diseases.(1,2) However, owing to the sensitive nature of these ailments, many patients hesitate to seek medical attention, resulting in delayed diagnosis and treatment, complicating management and posing a public health concern.

At the primary health-care level, both patient awareness and the capacity for specialized diagnosis and treatment of these disorders remain limited due to shortages in personnel, technical resources, and access to specialized care. In March 2025, during outreach clinics at the Muong Hum and Trinh Tuong regional polyclinics, Bat Xat District General Hospital conducted 75 consultations, of which 23 cases (30.7%) were confirmed as anorectal disorders; 19 of these required surgical intervention, including 12 cases of hemorrhoids. This scenario highlights the substantial community demand for care and underscores the urgent need to strengthen diagnostic and therapeutic capabilities at the grassroots level. Therefore, we performed this study to assess the current situation and propose appropriate measures to enhance professional standards and health-care outcomes.

2. Study subjects and methods

2.1. Study subjects

The study population comprised all patients diagnosed with anorectal and pelvic floor disorders (including hemorrhoids, anal fistula, inguinal hernia, appendicitis, etc.) who underwent surgery at the Department of Surgery, Bát Xát District General Hospital from March 4 to April 30, 2025.

2.2. Study site and period

Study site: Department of Surgery, Bat Xat District General Hospital—a level-II district hospital in Lao Cai Province offering specialized gastrointestinal, anorectal, and pelvic floor surgery.

Study period: From March 1, 2025 to April 30, 2025.

2.3. Research Methods

The study was conducted as a cross-sectional descriptive analysis by retrospectively reviewing the medical records of all patients diagnosed with anorectal and pelvic floor disorders (including hemorrhoids, anal fistula, inguinal hernia, appendicitis, etc.) who underwent surgery in the Department of Surgery at Bat Xat District General Hospital from 4 March to 30 April 2025.

2.4. Statistical Analysis

Data were collected and entered into SPSS version 20.0 for processing and analysis. Qualitative variables were presented as frequencies and percentages. Quantitative variables were expressed as mean ± standard deviation (SD) for normally distributed data, or as median and interquartile range (IQR) for non-normally distributed data. Proportions were compared using the Chi-square test or Fisher's exact test as appropriate. A **p-value < 0.05** was considered statistically significant.

3. Results

Table 1 Screening results at Muong Hum and Trinh Tuong clinics

Characteristic	Result
Total number of examinations	75
Hemorrhoids	18 (24%)
Treated medically	6
Surgery	12

Kidney/ureteral stones	4
Inguinal hernia	1
Gallbladder stones	3
Benign prostatic hyperplasia	1

Table 2 Status of anorectal surgeries at Bat Xat District General Hospital before the study period

Surgery type	**Number of cases per year**
Hemorrhoids	8–10
Anal fistula	1–2
Inguinal hernia	10–15
Appendicitis	150–200

Table 3 Overview of surgeries performed at the Department of Surgery during the study period

Type of surgery	**Number of cases (n)**
Total surgeries	103
Gastrointestinal surgeries	56 (54.37%)
Anorectal and pelvic floor surgeries	53 (51.45%)
Hemorrhoid surgery	15 (28.30%)
Anal fistula surgery	2 (3.77%)
Inguinal hernia repair	5 (9.43%)
Appendectomy	31 (58.5%)

Table 4 Characteristics of appendectomy cases during the study period

Characteristic	**Result**
Age (years)	36.4 ± 16.9
Symptom onset duration (days)	1.43 ± 0.67
Intraoperative diagnosis:	
- Suppurative appendicitis	25/31 (80.64%)
- Gangrenous appendicitis	3/31 (9.68%)
- Cecal diverticulitis + mesenteric adenitis	3/31 (9.68%)
Laparoscopic surgery	31/31
Operating time (minutes)	35.00 ± 9.75
Length of hospital stay (days)	5.03 ± 1.04

Table 5 Characteristics of hemorrhoidectomy cases during the study period

Characteristic	Result
Age (years)	45.20 ± 10.61
Symptom duration (years)	4 ± 5.21
Operating time (minutes)	24.58 ± 7.48
VAS score on postoperative day 1	
VAS < 4	14/15 (93.33%)
VAS ≥ 4	1/15 (6.67%)
Length of hospital stay (days)	5.92 ± 0.76

4. Discussion

4.1. Current Status of Anorectal and Pelvic Floor Disorders at Bat Xat District General Hospital

In this study, we focused on assessing the current diagnostic and therapeutic practices for four commonly encountered anorectal and pelvic floor conditions hemorrhoids, anal fistula, inguinal hernia, and appendicitis. In Vietnam, Hung NX reported that hemorrhoids are the most prevalent disorder, with a prevalence 34.7%, particularly among individuals with sedentary lifestyles and low-fiber diets.(1) Another study by Vu TA (2021) found that anal fistula is the second most common anorectal condition, accounting for approximately 25% of cases .(2) Inguinal hernia is also a frequent surgical condition, especially in older men. Finally, acute appendicitis remains the leading indication for emergency gastrointestinal surgery. A study at Can Tho City General Hospital estimated the community incidence of appendicitis at about 100 per 100,000 population per year, with a peak incidence between 20 and 40 years of age and a lifetime risk of 8.6% in men and 6.7% in women.(3) According to 2024 data from Bat Xat District General Hospital, the annual number of surgeries related to anorectal and pelvic floor disorders ranged from 170 to 225 cases. Among these, appendicitis accounted for the majority (150–200 cases per year), followed by inguinal hernia (10–15 cases per year), hemorrhoids (8–10 cases per year), and anal fistula (1–2 cases per year). These figures underscore the substantial demand for care of anorectal and pelvic floor disorders at the primary-care level. However, the existing capacity for specialized diagnosis and treatment remains inadequate to meet the community's needs.

The annual volume of hemorrhoid surgeries (8–10 cases per year) at Bat Xat District General Hospital does not accurately reflect the true community demand. During an outpatient screening session at the Muong Hum and Trinh Tuong regional polyclinics, 18 of 75 examinees (24%) were diagnosed with hemorrhoids; of these, 12 patients required surgical intervention, while 6 were managed conservatively with medical therapy and lifestyle modification. This finding demonstrates a relatively high community prevalence of advanced-stage hemorrhoids necessitating surgery. From a diagnostic standpoint, the Department of Surgery at Bat Xat Hospital has not yet established a standardized protocol for the evaluation and management of hemorrhoidal disease, particularly in cases indicated for surgery. Although proctoscopy and complete colonoscopy have been performed in selected patients, their utilization remains nonuniform and discretionary, largely contingent on the availability of equipment and personnel at any given time. Such variability introduces the risk of missing concomitant lesions such as colorectal polyps, mucosal ulcerations, or neoplasms. Moreover, routine application of a hemorrhoid grading system has not been implemented, resulting in subjective treatment decisions, limited individualization of care, and challenges for clinical research. These limitations significantly undermine the effectiveness of treatment strategies and the quality of patient management at the primary-care level.

The annual number of patients diagnosed and treated for anal fistula at Bat Xat District General Hospital remains very limited only about 1-2 surgical cases per year, predominantly simple fistulas. However, clinical practice indicates that many patients exhibit symptoms suggestive of anal fistula but are neither accurately diagnosed nor treated in a timely manner. This gap reflects a deficiency in diagnostic tools and specialized expertise at the primary-care level. From a diagnostic standpoint, the hospital has not yet implemented pelvic magnetic resonance imaging (MRI) - an essential adjunct for the diagnosis and classification of anal fistulas, particularly in complex cases. At present, diagnosis relies primarily on clinical examination and the surgeon's experience, supplemented by perineal ultrasound, which carries a risk of misinterpretation and missed lesions. Moreover, standardized classification systems such as Park's classification or the St. James's University Hospital grading have not been adopted, complicating both treatment selection and clinical

research. Regarding management, fistulotomy remains the principal technique, without clear consideration of sphincter involvement. Sphincter-preserving approaches such as seton placement… have yet to be established, exposing patients, especially those with high transsphincteric or complex fistulas, to a significant risk of sphincter damage and postoperative fecal incontinence. In summary, the capacity for the diagnosis and treatment of anal fistula at the district-level hospital is limited. Continuous specialist support from higher-level centers, along with concerted investment in imaging equipment and advanced surgical training, is urgently needed.

The annual volume of inguinal hernia repairs at Bat Xat District General Hospital ranges from 10 to 15 cases, indicating that diagnostic and therapeutic capabilities at the primary-care level remain constrained, despite many symptomatic patients in clinical practice who have yet to receive appropriate intervention. During the two-month period of specialist support, we diagnosed and treated five inguinal hernia cases, all in male patients with a mean age of 54.25 years. In terms of diagnosis, the hospital currently achieves satisfactory detection and definitive diagnosis through the clinical expertise of its surgeons, supplemented by supportive modalities such as abdominal ultrasonography and inguinoscrotal ultrasound. However, systematic preoperative screening for risk factors that elevate intra-abdominal pressure such as chronic constipation, benign prostatic hyperplasia, chronic cough, or chronic obstructive pulmonary disease has not been uniformly implemented. Failure to identify and manage these factors may increase the risk of postoperative recurrence and compromise long-term outcomes. Regarding treatment, all five patients underwent the classic Bassini repair, with a mean operative time of 41.25 minutes and an average postoperative hospital stay of 5.75 days. All cases progressed uneventfully, with no early postoperative complications observed. Nevertheless, the implementation of alternative techniques such as the Lichtenstein repair or laparoscopic TAPP/TEP at the district-level remains challenging due to shortages of specialized equipment and financial constraints on patients, despite the surgical team's proficiency. These findings highlight that the current capacity for diagnosing and treating inguinal hernia at the primary-care level is insufficient. To address these gaps, it is essential to provide advanced technical training, procure modern surgical equipment, and establish mechanisms to subsidize patient costs for materials and procedures.

Regarding acute appendicitis, in 2024, the hospital performed approximately 150–200 appendectomies, representing the largest share of gastrointestinal surgical procedures. This outcome is highly encouraging, reflecting the considerable efforts of the medical team despite significant equipment limitations. During the two-month period of specialist support, 31 appendectomies were performed, with a mean patient age of 36.4 ± 16.9 years. The mean interval from symptom onset to surgery was 1.43 ± 0.67 days, indicating timely patient access to care. Preoperative diagnostic accuracy exceeded 90%, even in the absence of a computed tomography (CT) scanner, underscoring the clinical acumen of primary-level physicians in acute abdominal assessment. All 31 cases underwent successful laparoscopic appendectomy, although 9.68% presented with gangrenous appendicitis complicated by peritonitis. The mean operative time was 35.00 ± 9.75 minutes, and the mean postoperative hospital stay was 5.03 ± 1.04 days, which aligns with expected recovery periods following minimally invasive abdominal surgery. These findings demonstrate that implementing laparoscopic appendectomy at the district level is both feasible and effective, contributing to reduced postoperative pain, shorter hospitalization, and overall improvement in the quality of emergency surgical care. This success represents a significant advancement in district-level emergency surgery capabilities and should be maintained and further developed.

4.2. Measures to Enhance the Quality of Diagnosis and Treatment of Anorectal and Pelvic Floor Disorders at Bat Xat District General Hospital

To improve the effectiveness of diagnosing and treating hemorrhoidal disease at the primary-care level, it is essential to implement interventions concurrently from both the health-care facility and the patient sides. At the health-care facility level, it is essential to develop and implement a standardized diagnostic workflow to enable lesion classification and individualized treatment. Specifically, patients under 45 years of age should undergo proctoscopy, whereas those aged 45 and above should receive full colonoscopy to identify concomitant lesions such as polyps, neoplasms, or colorectal ulcerations. The 45-year age threshold aligns with colorectal cancer screening guidelines in various countries and reflects Vietnam's epidemiological profile. (4) Furthermore, the BPRST (Bleeding–Prolapse–Reducibility–Skin tags–Thrombosis) classification proposed by Sobrabo in 2021 should be employed during initial assessment.(5) This system offers a comprehensive description of hemorrhoidal disease, is readily applicable at the primary-care level, and aids in selecting the most appropriate therapeutic approach—advantages over the traditional Goligher classification, which does not fully capture the spectrum of lesion severity. Regarding treatment, given the prolonged disease duration (mean 4 ± 5.21 years), patients often present with advanced disease: 100% were graded P2 and 86.67% graded R2. Consequently, we recommend the widespread implementation of Tran Ngoc Dung's vertical ligation mucopexy (TVLM)—a minimally invasive technique particularly suitable for treating circumferential internal hemorrhoids, which preserves hemorrhoidal tissue and anatomical structures while providing effective postoperative pain relief. Over two months of implementation at Bat Xat District General Hospital, 15 patients underwent this procedure with encouraging

outcomes: mean operative time was 24.58 ± 7.48 minutes; 93.33% of patients reported a VAS score < 4 on the first postoperative day; and mean postoperative hospitalization was 5.92 ± 0.76 days. These results demonstrate the feasibility, efficacy, and safety of ligation–mucopexy at the primary-care level. From the patient perspective, enhanced clinical outreach and health-education efforts during the support period resulted in over 20 outpatient consultations and treatments for hemorrhoids at the hospital, of which 15 required surgical intervention. These patients represented 8 of the district's 21 communes, with a mean age of 45.20 ± 10.61 years. This encouraging response highlights the critical role of strengthened communication and patient education in overcoming stigma, promoting early presentation, and facilitating timely treatment.

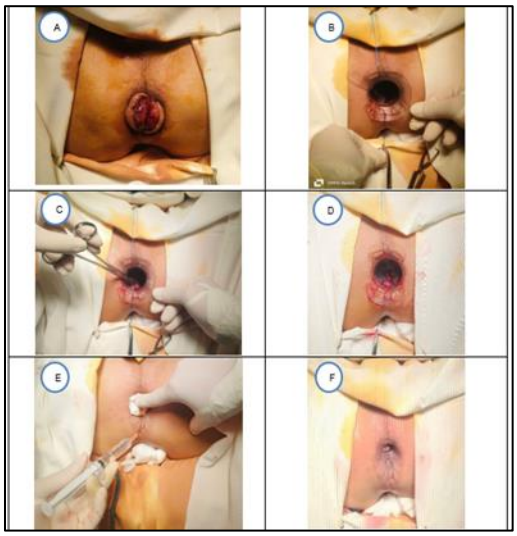

Figure 1 Procedure of Tran Ngoc Dung's vertical ligation mucopexy for Hemorrhoids
A) Preoperative image. B) Dilation and placement of the CAD retractor to protect the dentate line. C) Ligation and mucopexy of hemorrhoidal pedicles. D) Post-ligation appearance. E) Anal canal anesthesia. F) Postoperative appearance

For anal fistula, one of the greatest challenges at the primary-care level is achieving accurate diagnosis and lesion classification. Therefore, it is essential to strengthen the surgical team's clinical expertise in the examination and detection of anal fistulas, particularly the skills needed to perform a thorough anorectal examination to identify external and internal openings and to assess their relationship with the sphincter complex using endoanal or perineal ultrasonography. In settings where pelvic magnetic resonance imaging is not available, the Park classification system offers a practical and feasible approach for standardized lesion categorization. Park's classification delineates the anatomical relationship between the fistulous tract and the anal sphincter complex, thereby guiding clinicians in selecting the most appropriate treatment modality to ensure effective intervention and maximal preservation of sphincter function.(6) Therapeutically, preoperative Park grading informs the choice of surgical approach: simple fistulas may be managed with a single-stage fistulotomy, whereas intermediate- or high-transsphincteric fistulas require a staged procedure in which the initial step involves fistulotomy and seton placement to safeguard sphincter integrity and minimize the risk of postoperative fecal incontinence. During the two-month period of specialist support at Bat Xat District General Hospital, we successfully treated two cases of anal fistula: one simple fistulotomy and one seton placement for a mid-transsphincteric fistula. Both cases progressed uneventfully without postoperative complications, confirming that with proper training and timely specialist support, primary-care facilities can effectively manage common types of anal fistula.

Regarding inguinal hernia, diagnostic work at Bat Xat District General Hospital is currently performed well, relying primarily on clinical examination, abdominal ultrasonography, and inguinoscrotal ultrasound. Most patients present with clear clinical symptoms and are diagnosed in a timely manner. However, one area for improvement at the primary-care level is the systematic screening and management of preoperative risk factors that elevate intra-abdominal pressure, which can significantly influence treatment outcomes and recurrence rates. Common conditions that increase intra-abdominal pressure such as chronic constipation, benign prostatic hyperplasia, chronic cough, asthma, and chronic obstructive pulmonary disease (COPD)… should be thoroughly assessed during the preoperative evaluation. Specifically, men over 50 years of age should undergo prostate examination and ultrasonography, particularly if they exhibit lower urinary tract symptoms (e.g., dysuria, urinary frequency), to identify and treat benign prostatic hyperplasia when present. For patients over 60 years of age or those with a history of chronic cough, smoking, or

asthma, pulmonary function testing (spirometry) should be performed to screen for asthma and chronic obstructive pulmonary disease (COPD) - factors that significantly increase the risk of hernia recurrence if left unmanaged. Additionally, modern repair techniques such as Lichtenstein, TAPP, and TEP should be gradually adopted in clinical practice to supplant the Bassini method, which has notable limitations. According to the European Hernia Society guidelines, mesh-based repairs like the Lichtenstein technique reduce recurrence rates to below 2%, result in less postoperative pain, and shorten recovery times compared with the Bassini repair.(7) Likewise, laparoscopic TEP and TAPP have demonstrated equivalent or superior efficacy to open repairs in numerous clinical studies evaluating recurrence rates, particularly in bilateral or recurrent hernia cases. These minimally invasive approaches also offer advantages such as lower postoperative pain, reduced wound complications, and faster convalescence, making them especially suitable for patients with bilateral hernias, recurrences, or those requiring an expedited return to work .(8,9)

Figure 2 Fistulotomy and Seton Placement for Transsphincteric Anal Fistula

For acute appendicitis, the treatment outcomes at Bat Xat District General Hospital have been highly commendable and warrant continued emphasis. The diagnostic accuracy rate exceeds 90%, and the majority of cases were successfully managed by laparoscopic appendectomy, underscoring the robust expertise of the district-level surgical team in emergency gastrointestinal care. However, to further improve diagnostic and therapeutic quality, the hospital should invest in modern imaging modalities—particularly abdominal computed tomography (CT) to assist in diagnosing challenging or atypical presentations, such as appendicitis in the elderly, pregnant women, obese patients, or when clinical manifestations are equivocal. One study demonstrated that CT achieves 100% sensitivity and 99.1% specificity for diagnosing appendicitis in patients over 65 years of age, thereby reducing negative laparotomy rates and complications from delayed diagnosis.(10) The acquisition of this equipment would not only serve appendicitis care but also support the diagnosis of other gastrointestinal and surgical conditions at the primary-care level.

5. Conclusion

The current state of diagnosis and management of anorectal and pelvic floor disorders at Bat Xat District General Hospital reveals a substantial demand for surgical intervention at the primary-care level, while significant constraints exist in terms of personnel, equipment, and advanced technical capabilities. Going forward, it is essential to refine diagnostic protocols, expand specialized training, and invest in modern equipment to broaden the use of minimally invasive techniques, efforts that will directly enhance treatment efficacy and improve patient quality of life within grassroots health-care settings.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare that they have no conflict of interest.

Statement of ethical approval

This study was a retrospective analysis of anonymized patient data and therefore did not require ethical approval. All patient information was kept confidential and anonymized in accordance with institutional and ethical guidelines.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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