SCIENTIFIC LETTER

DOI: 10.5336/jcog.2022-92762

Laparoscopic Surgery in the Evaluation of Acute Pelvic Pain

Dinushi DE ALWIS[a], Pavitra NANAYAKKARA[b]

[a]Monash Health, Clayton, Victoria, Australia
[b]Epworth Hospital, Richmond, Victoria, Australia

ABSTRACT Acute pelvic pain (APP) is non-specific with a 5% to 10% prevalence of visits per annum to emergency. The multiple organ systems within the pelvis, result in diagnostic error, with an estimated 45% of pre-menopausal women misdiagnosed. Unfortunately, diagnostic accuracy cannot always be ascertained with physical examination or imaging; however, direct visualisation of the pelvic cavity via laparoscopic surgery provides a more conclusive diagnostic approach. This letter aims to explore the various aetiologies of APP in women and the current modalities utilised in the diagnostic pathway. The primary aim of this letter is to propose laparoscopic surgery as a possible diagnostic modality to evaluate APP in women.

Keywords: Pelvic pain; acute; non-specific lower abdominal pain; diagnostic laparoscopy; laparoscopic surgery

Acute pelvic pain (APP) presentations are non-specific.[1,2] As demonstrated in Table 1, they can be attributed to gynaecological, gastrointestinal, urological, and other pathologies giving rise to a diagnostic dilemma.[2] It has been postulated that direct visualisation of the pelvic cavity via a laparoscopic approach could reduce the incidence of this diagnostic error.[1] A systematic review performed by Gaitán et al. reviewed 12 studies including 1,020 participants; 4 of the 12 trials investigated laparoscopic diagnosis of APP compared with a conservative approach to demonstrate a significant difference in diagnostic accuracy (83% vs 45%) with a preference for laparoscopy.[1]

A conservative approach of hospitalisation and active clinical observation is the most widely used management protocol at present in women presenting with APP, with a predictive value estimated between 68% and 92%.[1,2] With regards to bimanual assessment, 75% of presentations with a normal bimanual examination will show abnormal findings at laparoscopy compared with 11% of presentations with an abnormal bimanual examination resulting in normal laparoscopy.[4] Transvaginal ultrasound commonly utilised as the initial diagnostic modality proves beneficial for small masses and when pelvic examination is abnormal, but has a significantly low predictive value (51%) when ultrasound findings are normal.[1,4]

Laparoscopy offers a diagnostic and therapeutic modality to APP.[1] It is a minimally invasive approach providing direct visualisation of the pelvic and abdominal cavities.[3,5] In women with atraumatic APP, laparoscopy has confirmed a diagnosis in 70% of presentations, clarified the diagnosis in 29% and provided a definitive diagnosis in 99% of cases.[4] Therefore, laparoscopy proves invaluable in undifferentiated APP; it is conclusive, safe, and cost effective.[1] Most importantly, it reduces pitfalls in diagnosis, enables earlier management, and improves prognosis.[4] Although this approach is somewhat invasive, it is offset by the ability to treat the condition simultaneously via the use of diathermy or excision.[5] In addition, severe complications are rare, at a rate of 2 in 1,000 patients; these include bowel perforation, port site herniation, haemorrhage, infection, damage to neighbouring structures, adhesion formation, and

Correspondence: Dinushi DE ALWIS
Monash Health, Clayton, Victoria, Australia
E-mail: dinushi.dealwis@monashhealth.org

Peer review under responsibility of Journal of Clinical Obstetrics & Gynecology.

Received: 04 Aug 2022 ***Accepted:*** 24 Jan 2023 ***Available online:*** 27 Jan 2023

TABLE 1: Aetiological classification of APP.[1-5]

Gynaecological		
Non-pregnancy related	**Pregnancy related**	
● Pelvic inflammatory disease	● Ectopic pregnancy	
● Tubo-ovarian abscess	● Miscarriage	
● Endometriosis	● Endometritis	
● Adenomyosis	● Uterine fibroid degeneration	
● Pelvic adhesions	● Ovarian torsion	
● Uterine fibroid degeneration	● Pelvic vein thrombosis	
● Ovarian cyst rupture	● Placental abruption	
● Ovarian torsion		
● Mittelschmerz		
● Primary dysmenorrhea		
● Imperforate hymen		
● Transverse vaginal septum		
● Congenital pelvic malformations		
● Carcinoid		
Non-gynaecological		
Gastrointestinal	**Urological**	**Other**
● Appendicitis	● Cystitis	● Dissecting aortic aneurysm
● Bowel obstruction	● Pyelonephritis	● Somatization disorder
● Diverticulitis	● Urolithiasis	● Myofascial pain
● Inguinal hernia		● Narcotic seeking
● Irritable bowel syndrome		● Domestic abuse
● Inflammatory bowel disease		

APP: Acute pelvic pain.

failure.[1,4,5] Cost and recovery time relating to surgery may deter some patients from a laparoscopic approach to their treatment.[1,5]

A prospective algorithm to evaluate APP with the inclusion of laparoscopy in the diagnostic pathway is depicted in Figure 1. Nevertheless, the advent of laparoscopy provides a minimally invasive, accurate approach to overcome the diagnostic challenge posed by APP. Further research is undoubtedly necessitated prior to its introduction to the diagnostic protocol for APP.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Pavitra Nanayakkara;* ***Design:*** *Dinushi De Alwis;* ***Control/Supervision:*** *Pavitra Nanayakkara;* ***Data Collection and/or Processing:*** *Dinushi De Alwis;* ***Analysis and/or Interpretation:*** *Dinushi De Alwis;* ***Literature Review:*** *Dinushi De Alwis;* ***Writing the Article:*** *Dinushi De Alwis;* ***Critical Review:*** *Pavitra Nanayakkara, Dinushi De Alwis;* ***References and Fundings:*** *Dinushi De Alwis;* ***Materials:*** *Dinushi De Alwis.*

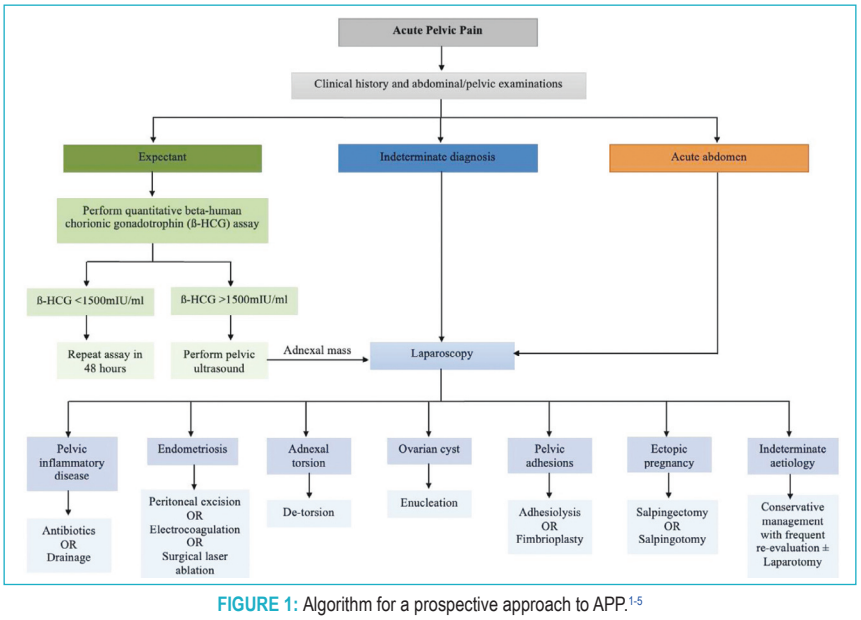

FIGURE 1: Algorithm for a prospective approach to APP.[1-5]
APP: Acute pelvic pain.

REFERENCES

1. Gaitán H, Angel E, Sánchez J, Gómez I, Sánchez L, Agudelo C. Laparoscopic diagnosis of acute lower abdominal pain in women of reproductive age. Int J Gynaecol Obstet. 2002;76(2):149-58. [Crossref] [PubMed]
2. Kruszka PS, Kruszka SJ. Evaluation of acute pelvic pain in women. Am Fam Physician. 2010;82(2):141-7. [Link]
3. Mikkelsen AL, Felding C. Laparoscopy and ultrasound examination in women with acute pelvic pain. Gynecol Obstet Invest. 1990;30(3):162-4. [Crossref] [PubMed]
4. Murphy A, Fliegner J. Diagnostic laparoscopy: role in management of acute pelvic pain. Med J Aust. 1981;1(11):571-3. [Crossref] [PubMed]
5. Laborda E, Clarke A, Carpenter T. The threshold for laparoscopy for pelvic pain. Obstet Gynecol. 2010;12:7-12. [Crossref]