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VIDEO ARTICLE

Peritoneal Retraction Pocket Defects and Their Important Relationship with Pelvic Pain and Endometriosis

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ABSTRACT **Objective:** The objective of this video is to demonstrate different clinical presentations of peritoneal defects (peritoneal retraction pockets) and their anatomic relationships with the pelvic innervation, justifying the occurrence of some neurologic symptoms in association with these diseases.

Design: Surgical demonstration of complete excision of different types of peritoneal retraction pockets and a comparison with a laparoscopic retroperitoneal cadaveric dissection of the pelvic innervation.

Setting: Private hospital in Curitiba, Paraná, Brazil.

Interventions: A pelvic peritoneal pocket is a retraction defect in the surface of the peritoneum of variable size and shapes [1]. The origin of defects in the pelvic peritoneum is still unknown [2]. It has been postulated that it is the result of peritoneal irritation or invasion by endometriosis, with resultant scarring and retraction of the peritoneum [3,4]. It has also been suggested that a retraction pocket may be a cause of endometriosis, where the disease presumably settles in a previously altered peritoneal surface [5]. These defects are shown in many studies to be associated with pelvic pain, dyspareunia, and secondary dysmenorrhea [1−4]. Some studies have shown that the excision of these peritoneal defect improves pain symptoms and quality of life [5]. It is important to recognize peritoneal pockets as a potential manifestation of endometriosis because in some cases, the only evidence of endometriosis may be the presence of these peritoneal defects [6].

In this video, we demonstrate different types of peritoneal pockets and their close relationship with pelvic anatomic structures.

Case 1 is a 29-year-old woman, gravida 0, with severe dysmenorrhea and catamenial bowel symptoms (bowel distension and diarrhea/constipation) that were unresponsive to medical treatment. Imaging studies were reported as normal, and a laparoscopy showed a posterior cul-de-sac peritoneal pocket infiltrating the pararectal fossa, with extension to the lateral border of the rectum.

Case 2 is a cadaveric dissection of a posterior cul-de-sac peritoneal pocket infiltrating the pararectal fossa, with extension to the pelvic sidewall. After dissection of the obturator fossa, we can observe that the pocket is close to the sacrospinous ligament, pudendal nerve, and some sacral roots.

Case 3 is a 31-year-old woman, gravida 1, para 1, with severe dysmenorrhea that was unresponsive to medical treatment and catamenial bowel symptoms (catamenial bowel distention and diarrhea). Imaging studies were reported as normal and a laparoscopy showed left uterosacral peritoneal pocket infiltrating the pararectal fossa in close proximity to the rectal wall.

Case 4 is a cadaveric dissection of the ovarian fossa and the obturator fossa showing the proximity between these structures.

Case 5 is a 35-year-old woman, gravida 0, with severe dysmenorrhea that was unresponsive to medical treatment, referring difficulty, and pain when walking only during menstruation. A neurologic physical examination revealed weakness in thigh adduction, and the magnetic resonance imaging showed no signs of endometriosis. During laparoscopy, we found a peritoneal pocket infiltrating the ovarian fossa, with involvement in the area between the umbilical ligament and the uterine artery. This type of pocket can easily reach the obturator nerve. Because the obturator nerve and its branches supply the muscle and skin of the medial thigh [7,8], patients may present with thigh adduction weakness or difficulty ambulating [9,10].

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Case 6 is a cadaveric dissection of the sacrospinous ligament and the pudendal nerve from a medial approach, between the umbilical artery and the iliac vessels.
Case 7 is a 34-year-old woman, gravida 1, para 1, with severe dysmenorrhea and catamenial bowel symptoms as well as deep dyspareunia. The transvaginal ultrasound showed focal adenomyosis and a 2-cm nodule, 9-cm apart from the anal verge, affecting 30% of the bowel circumference. In the laparoscopy, we found a posterior cul-de-sac retraction pocket associated with a large deep endometriosis nodule affecting the vagina and the rectum.
In all cases, endometriosis was confirmed by histopathology, and in a 6-month follow-up, all patients showed improvement of bowel, pain, and neurologic symptoms.
Conclusion: Peritoneal pockets can have different clinical presentations. Depending on the topography and deepness of infiltration, they can be the cause of some neurologic symptoms associated with endometriosis pain.
With this video, we try to encourage surgeons to totally excise these lesions and raise awareness about the adjacent key anatomic structures that can be affected. Journal of Minimally Invasive Gynecology (2020) 00, 1−2.

Keywords: Endometriosis; Peritoneal pockets; Deep endometriosis; Dysmenorrhea; Neuropelviology

Supplementary materials

Supplementary material associated with this article can be found in the online version at https://doi.org/10.1016/j.jmig.2020.05.020.

References

1. Yeung PP Jr, Logan I, Gavard JA. Deep retraction pockets, endometriosis, and quality of life. *Front Public Health*. 2016;4:85.
2. Redwine DB. Peritoneal pockets and endometriosis. Confirmation of an important relationship, with further observations. *J Reprod Med*. 1989;34:270–272.
3. Chatman DL. Pelvic peritoneal defects and endometriosis: Allen-Masters syndrome revisited. *Fertil Steril*. 1981;36:751–756.
4. Chatman DL, Zbella EA. Pelvic peritoneal defects and endometriosis: further observations. *Fertil Steril*. 1986;46:711–714.
5. Ilnitsky S, Rafea BA, Vilos AG, Vilos GA. Pelvic peritoneal pockets: distribution, histopathology, and clinical significance. *J Obstet Gynaecol Can*. 2019;41:1251.
6. Khan KN, Fujishita A, Kitajima M, Hiraki K, Nakashima M, Masuzaki H. Occult microscopic endometriosis: undetectable by laparoscopy in normal peritoneum. *Hum Reprod*. 2014;29:462–472.
7. Possover M, Schneider T, Henle KP. Laparoscopic therapy for endometriosis and vascular entrapment of sacral plexus. *Fertil Steril*. 2011;95:756–758.
8. Vilos GA, Vilos AW, Haebe JJ. Laparoscopic findings, management, histopathology, and outcomes in 25 women with cyclic leg pain. *J Am Assoc Gynecol Laparosc*. 2002;9:145–151.
9. Niro J, Fournier M, Oberlin C, Le Tohic A, Panel P. Endometriotic lesions of the lower troncular nerves. *Gynecol Obstet Fertil*. 2014;42:702–705.
10. Ekpo G, Senapati S, Advincula AP. Laparoscopic excision of endometriosis of the obturator nerve: a case report. *J Minim Invasive Gynecol*. 2007;14:764–766.