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Internal Hernia of Broad Ligament: A CT Scan Suspicion and Laparoscopic Treatment

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Abstract: Internal hernia of the broad ligament is rare. Computerized tomography is the key tool of the diagnosis. The treatment is surgical and takes advantage of the use of laparoscopy. We report a case of internal hernia of right broad ligament suspected on computerized tomography and treated by laparoscopy. The following was uneventful.

Key words: Internal hernia, broad ligament, computed tomography, laparoscopy.

1. Introduction

Internal hernias are protrusions of hollow abdominal viscera usually the small intestine through a natural or an acquired orifice within the peritoneal cavity [1]. They are characterized by their scarcity, representing only 0.4% to 4.1% of all small bowel incarcerations and their very variable location [2-4]. The ones of the broad ligament are extremely rare, representing less than 5% of all internal hernias [2]. Preoperative diagnosis of internal hernia of broad ligament is quite difficult [5]. The usefulness of computed abdominal tomography has been already reported and the management of this abdominal emergency has largely improved with the use of laparoscopy [6, 7].

We report a case of internal hernia of right broad ligament suspected on computed tomography and confirmed then treated successfully by laparoscopy.

2. Case Report

A 37-year-old woman, gravida 3, para 3, was admitted in emergency for acute pelvic pain with vomiting raised 2 hours before admission. There were no fever and failure of stool and gas flow.

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She had 3 vaginal deliveries and no previous abdominal surgery. But she was having chronic pelvic pain since the last delivery 15 months ago.

On examination the temperature and the blood pressure were normal. We noted a flat abdomen, not distended, with pain on palpation of the right iliac fossa and diminished bowel sounds. There were no peritoneal signs. The gynecological examination revealed a slight pain when moving the uterus. Rectal examination did not show any abnormalities. The full blood count (hemoglobin 14.9 g/dL, hematocrit 41.8%, WBC 8,000/mm^3) and electrolytes (sodium 136 mmol/L, potassium 3.8 mmol/L) were normal. The urinary test of pregnancy was negative and the CRP was normal.

Thinking of a gynecological disorder or appendicitis we request a pelvic ultrasound which showed a distended small bowel localized in the pelvis without any movement. The appendix was normal and there was no adnexal mass. The rest of the abdominal cavity was normal. The radiologist subsequently performed an abdominal computed tomography which revealed a distended small bowel (a close loop) in right side of the uterus (Fig. 1). There were no sign of bowel ischemia. The radiologist was unsure of the exact aetiology and a band adhesion in the pelvis or an internal hernia

through the broad ligament was then suspected.

As it was no abdominal distension, an emergency laparoscopy was performed. It showed an internal hernia through the right broad ligament. The defect, in which 8 cm of viable small bowel was incarcerated, was located in the mesosalpinx (Fig. 2). The bowel was then removed and the defect closed by an interrupted suture with 3/0 vicryl (Fig. 3).

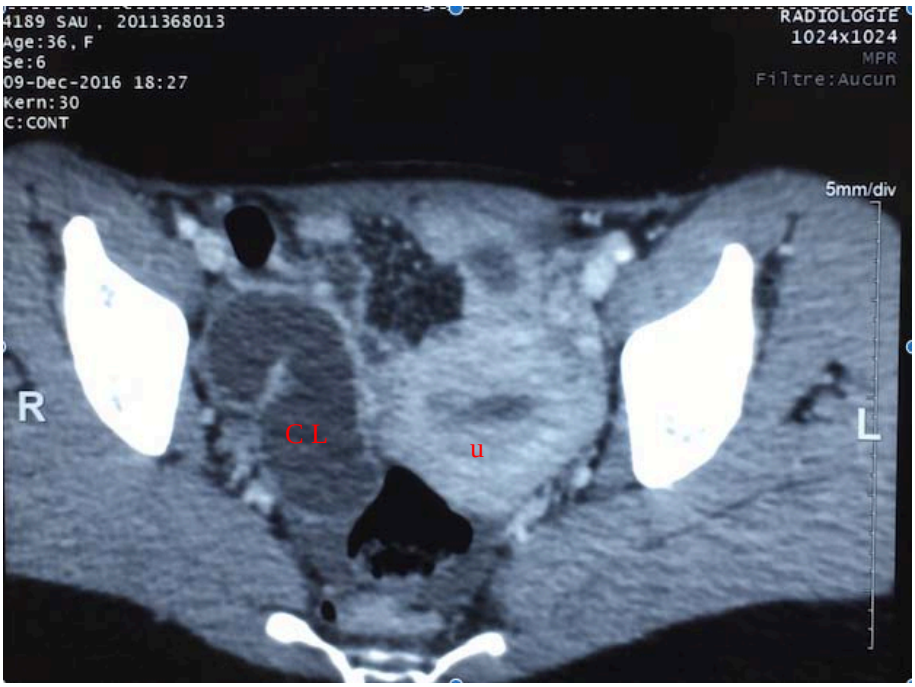

Fig. 1 Computerized tomography showing a close loop (CL) on the right side of uterus (u).

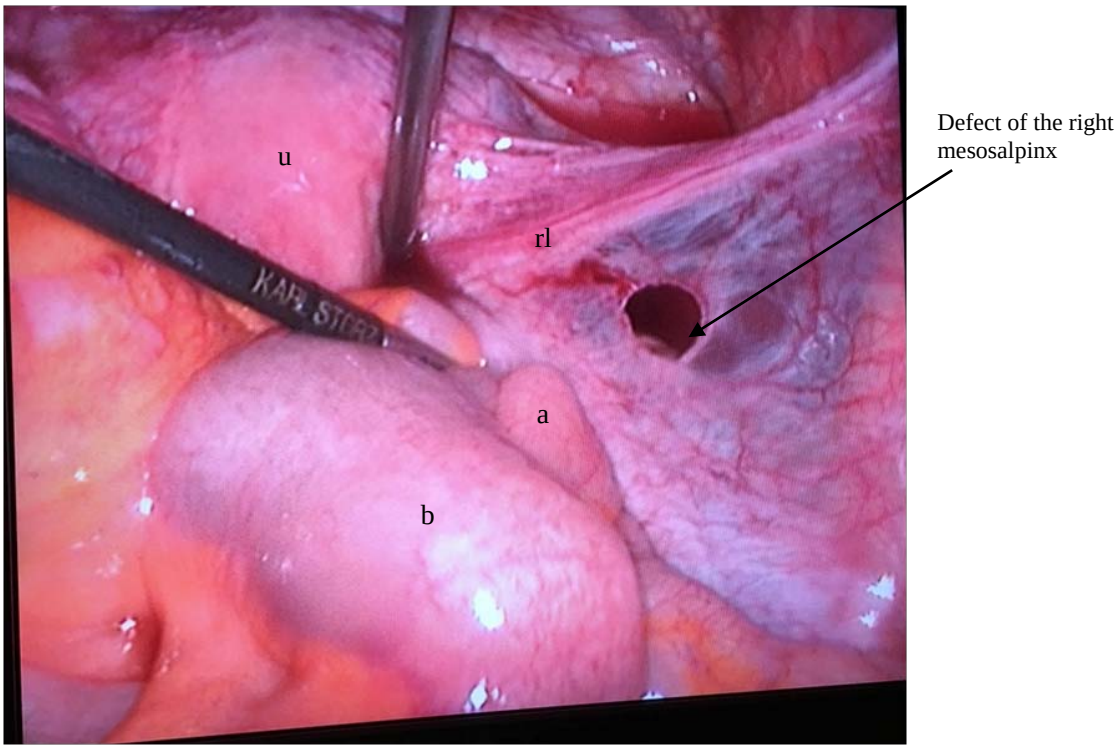

Fig. 2 Laparoscopic view of the defect of the right mesosalpinx after removal of the incarcerated small bowel (a:appendix, u:uterus, b: small bowell, rl:round ligament).

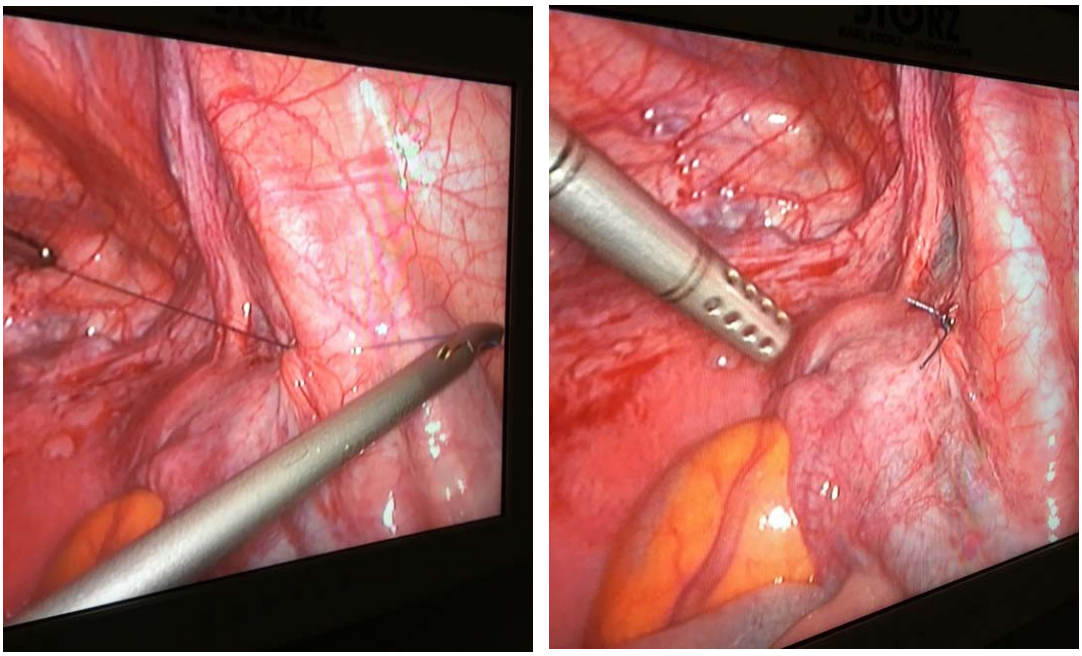

Fig. 3 (a, b): Laparoscopic view of the closure of the defect after removal of the small bowel incarcerated.

The follow up was uneventful. The patient was discharged the second day after surgery.

3. Discussion

Internal hernia of the broad ligament is the protrusion of viscera through a defect of the broad ligament [8]. The defect in our patient was in the right broad ligament, while most of the time it's located in the left broad ligament [2, 8]. Although the precise pathogenesis of the defect remains unknown, regarding its causes, they are thought to be either congenital or acquired [5]. The congenital defect is related to the spontaneous rupture of cystic structures within the broad ligament reminiscent of the mesonephric or Müllerian ducts and should be considered in nulliparous patient or in patient without any history of pelvic surgery [8]. The acquired causes include operative traumatism, delivery traumatism, and pelvic inflammatory disease [8]. In 80% of cases multiparity is a predisposing factor [9]. Our patient was multiparous with 3 vaginal deliveries and was having pelvic pain after her last delivery. This pelvic pain could be part of the Masters Allen syndrom which reflects the broad ligament laceration after delivery [9, 10]. That's why we thought that the defect of our patient could be acquired.

Once the defect is present the viscera could get through the defect with potential hernia strangulation or an entrapment [11].

In our patient, the small bowel incarcerated through a defect of the right broad ligament. The herniation of the small bowel happened in up to 90% of cases [2]. But the incarceration of the cecum, the appendix, the sigmoid, the ovaries, the omentum, the bladder and the ureter have been already reported [2, 12, 13].

The defect was located in the mesosalpinx corresponding to the type 2 of Cilley and was the fenestra type of the classification of Hunt [14].

The clinical signs are not specific. It is most of the time signs of small bowel obstruction [9, 14]. Our patient had pelvic pain related first to gynecological disorders like ectopic pregnancy, torsion of ovarian cyst or appendicitis. We performed ultrasound before CT scan which helped to suspect the diagnosis.

CT scan with intravenous contrast is a radiological modality of choice in the diagnosis of internal hernia of the broad ligament [2, 7, 14]. It helped, in our patient, to evoque the possibility of an internal hernia of broad

ligament and led us to perform laparoscopy as there was no bowel ischaemia and no major intestinal gas distension.

Laparoscopy is a surgical procedure which confirms the diagnosis with an accuracy of more than 90% compared to the other diagnostic tools and treats at the same setting with better post operative cares [7, 15, 16]. It is easily feasible when the patient has no prior abdominal surgery, no abdominal meteorism and no bowell ischeamia as it was the case in our patient [7, 14].

4. Conclusions

Although rare, internal hernia of the broad ligament should be considered in any young woman with acute pelvic pain. Rapid diagnosis and treatment of this rare pathology is of paramount importance. CT scan is the radiological method of choice. Laparoscopy has an additional value in confirmation of the diagnosis and in the treatment in the absence of extensive bowel distention with good post operative outcomes.

References

[1] Blachar, A., Federle, M. P, and Forrest, D. S. 2001. "Internal Hernia Clinical and Imaging Findings in 17 Patients with Emphasis on CT Criteria." *Radiology 2001* 218 (1): 68-74.

[2] Regent, D., Ranchoup, Y., M'Bengue, A., Nghi Phi, I, Chikhaoui, N., and Mathias, J. 2015. "Imagerie radiologique des hernies internes." EMC—RADIOLOGIE ET IMAGERIE MEDICALE: Abdominale—Digestive 10 (4): 1-24. (Article 33-320-A-10).

[3] Guillem, P., Cordonnier, C., Bounoua, F., Aams, P., and Duval, G. 2003. "Small Bowel Incarceration in a Broad Ligament Defect." *Surg. Endosc* 17 (1): 161-2.

[4] Nozoe, T., and Anai, H. 2002. "Incarceration of Small Bowel Herniation through a Defect of the Broad Ligament of the Uterus." Report of a Case. *Surg. Today.* 32 (9): 834-5.

[5] Hiraiwa, K., Morozumi, K., Miyazaki, H., Sotome, K., Furukawa, A., and Nakamaru, M. 2006. "Strangulated Hernia through a Defect of the Broad Ligament and Mobile Cecum: A Case Report." *World J. Gastroenterol* 12 (9): 1479-80.

[6] Suzuki, M., Takashima, T., Funaki, H., Uogishi, M., Isobe, T., Kanno, S., Kuwahara, M., Ushitani, K., and Fuchuh, K. 1986. "Radiologic Imaging of Herniation of the Small Bowel through a Defect in the Broad Ligament." *Gastrointest Radiol* 11: 102-4.

[7] Echaïeb, A., Hrarat, L., and Kotobi, H. 2013. "Traitement Chirurgical des hernies internes." *EMC. Techniques Chirurgicales—Appareil Digestif* 8 (3): 1-13 (Article 40-445).

[8] Agresta, F., Michelet, I., Candiotto, E., and Bedin, N. 2007. "Incarcerated Internal Hernia of the Small Intestine Through a Breach of the Broad Ligament: Two Cases and a Literature Review." *Journal of the Society of Laparoendoscopic Surgeon* 11: 255-7.

[9] Ivo, C. J. H., Astrid Vollebregt, Nazar Bokani, and Niels de Korte. 2014. "The Complicated Allen-Masters Syndrome: Small Bowel Herniation through a Broad Ligament Defect." *American Journal of Obstetrics & Gynecology* 2014: e3-4.

[10] Juhan, V. 2015. "Chronic Pelvic Pain: An Imaging Approach." Diagnosis and Interventional Imaging, Volume 96, Issues 10, October 2015, Pages 997-1007.

[11] Otani-Takei, N., Akimoto, T., Sadatomo, A., Saito, O., Muto, S., Kusano, E., and Nagata, D. 2016. "Bowel Obstruction and Peritoneal Dialysis: A Case Report of a Patient with Complications from a Broad Ligament Hernia." *Clinical Medicine Insights: Case Reports* 9: 57-60.

[12] Demir, H., and Scoccia, B. 2010. "Internal Herniation of Adnexa through a Defect of the Broad Ligament: Case Report and Literature Review." *The Journal of Minimally Invasive Gynecology* 17 (1):110-2.

[13] El Madi, A., Khattala, K., Rami, M., and Bouabdallah, Y. 2014. "Hernia of the Bladder through the Broad Ligament with Renal Agenesis and Ipsilateral Ureter Blind Ending Pan." *African Medical Journal* 18: 218.

[14] Marraoui, W., Petitcolin, V., Bros, S., Slim, K., Garcier, J.-M., and Da Ines, D. 2012. "Internal Hernia of the Broad Ligament: CT Diagnosis for Laparoscopic Management." *Diagnosis and Interventional Imaging* 93 (7-8): 621-4.

[15] Matsunami, M., Kusanagi, H., Hayashi, K., Yamada, S., and Kano, N. 2014. "Broad Ligament Hernia Successfully Treated by Laparoscopy: Case Report and Review of Literature." *Asian Journal of Endoscopic Surgery* 7 (4): 327-9.

[16] Bangari, R., and Uchil, D. 2012. "Laparoscopic Management of Internal Hernia of Small Intestine through a Broad Ligament Defect." *Journal of Minimally Invasive Gynecology* 19 (1): 122-4.