An unusual cause of pneumoperitoneum—Traumatic vaginal dehiscence six months after hysterectomy

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ABSTRACT

Introduction: Intraperitoneal free air usually results of the perforation of a hollow viscus. A high degree of suspicion based on previous medical history can identify a gynecologic origin. Case Report: We present a case where pneumoperitoneum was caused by traumatic postcoital partial vaginal cuff dehiscence six months after hysterectomy in a patient without risk factors for poor wound healing. Conclusion: This case highlights the importance of considering the less common causes of pneumoperitoneum and therefore conducting an exhaustive clinical history and physical examination. At the same time, it highlights the difficulty in providing recommendations about the safe period after surgery before the beginning of intercourse.

Keywords: Hysterectomy, Pneumoperitoneum, Vaginal cuff rupture

INTRODUCTION

Radiographic evidence of free intraperitoneal air suggests perforation of a hollow viscus and usually determines urgent surgery, but in up to 15% of the patients, the pneumoperitoneum is caused by nonabdominal cause, particularly with thoracic or gynecological origin, or is idiopathic [1]. Many of these cases, when air does not come from the viscera of the digestive tract, undergo urgent diagnostic surgery because a nonsurgical cause is not identified preoperatively. In order to reduce the number of unnecessary surgeries, and its potential early and late complications, it is essential to obtain a complete medical history, including detailed sexual and gynecological history.

Cases of pneumoperitoneum caused by vaginal dome dehiscence have been reported after hysterectomy performed by all surgical techniques, that is, through the abdominal, vaginal, laparoscopic, or robotic route [2–4]. The time frame after hysterectomy to abstain from vaginal intercourse to decrease the likelihood of dehiscence is not well defined but the recommendations usually range from 8 to 12 weeks [4].

CASE REPORT

A 39-year-old female came to the Emergency Department with pain localized to the lower abdominal quadrants with 24 hours of evolution. She also complained of nausea and diarrhea with almost the same time of evolution.

When questioned, the patient described vaginal sexual
intercourse with the usual partner the night before the beginning of the pain.

Abdominal examination revealed a nondistended abdomen with normal bowel sounds, tenderness on lower quadrants deep palpation without signs of peritoneal irritation. During her stay in the Emergency Department, the patient had normal pulse, blood pressure, respiratory rate, and temperature. The abdominal radiography showed a pneumoperitoneum (Figure 1). There was leukocytosis (19,000×10^9/L) in the blood analysis and the computed tomography scan report described a pneumoperitoneum without identifying a cause.

After evaluation by the gynecologist that found no vaginal lesions, an emergency surgical procedure was performed. Intraoperatively, a small volume purulent exudate was found in the pelvis with adherence of the sigmoid colon to the place of the previously sutured vaginal stump. A laceration of about 1 cm long was detected in the vaginal cuff, no other lesions were identified (Figure 2). The defect was closed with on layer absorbable stitches after freshening of the edges. The patient was discharged home three days after the procedure, without any postoperative complication.

**DISCUSSION**

Regarding air access to the peritoneal cavity with a gynecologic origin, two mechanisms have been described. In patients without surgical history, it is the vaginal passage of air through the uterus to the Fallopian tubes that gains access to the peritoneum and in patients with a gynecologic surgical history, this phenomenon occurs due to the opening at a previous hysterectomy suture line.

A pneumoperitoneum with a gynecologic origin in patients without hysterectomy history has been increasingly reported mainly because of more frequent sexual practices including oro-vaginal air insufflation [2]. In fact, all practices that increase intracavitary pressure have the potential of causing pneumoperitoneum, as hot tub use, but even medical procedures, like the hysterosalpingocontrast sonography, have been reported as a possible cause [5].

A pneumoperitoneum after gynecologic surgical procedures, resulting from a dehiscence of the vaginal cuff, can occur spontaneously or after trauma. Most descriptions about traumatic rupture are associated with the first postoperative intercourse within the period of four months after the procedure, most of the times in women with risk factors for poor wound healing [6]. In this case, the postcoital vaginal rupture occurred six months after the procedure, was not associated with the first postoperative vaginal intercourse and this patient is a healthy young woman without risk factors like diabetes, immunosuppression, being a smoker or with a history of postoperative adjuvant therapy.

Usually after partial vaginal cuff rupture, the clinical presentation with abdominal pain does not include other gastrointestinal symptoms, except when there is evisceration. When in doubt about the origin of pneumoperitoneum, abdominal exploration must always be considered. In the case we just presented, a surgical procedure was necessary once the patient had associated complaints of nausea and diarrhea and no lesion was found in the preoperative observation by the gynecology team, probably because the laceration was so small. In case of a larger dehiscence, in addition to its easier identification in the gynecological evaluation, it usually causes bowel or omentum evisceration that leaves no doubt about the diagnosis.

**CONCLUSION**

This case of postcoital vaginal rupture with the usual sexual partner not associated with the first postoperative vaginal sexual intercourse in a patient without risk factors for poor tissue healing underlines the difficulty for the gynecologist to provide recommendations about the safe...
time between hysterectomy and the onset of intercourse. For the General Surgeon, it emphasizes the importance of including unusual causes in the differential diagnosis of pneumoperitoneum, highlighting the need to perform an exhaustive clinical history and physical examination.

REFERENCES


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Author Contributions

Telma Rodrigues Brito – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Diana Gomes – Acquisition of data, Interpretation of data, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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