

# Acute pneumoperitoneum following coitus

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## ABSTRACT

Vaginal rupture leading to pneumoperitoneum is well documented to occur after hysterectomy or surgery. However, it is extremely rare in a young woman following conventional intercourse. We report one such case. A 16-year-old woman presented to the accident and emergency department with a clinical picture of an acute abdomen. Results of radiography showed gas under the diaphragm, suggesting the possibility of bowel perforation. A detailed sexual history pointed toward the possibility of vaginal trauma. Diagnosis was confirmed on examination under anesthesia, and the tear repaired. A concomitant laparoscopy ruled out any other intra-abdominal injury. This case reminds us that acute peritoneum can occur after sexual intercourse and also reiterates the importance of a detailed sexual history and vaginal examination in young women presenting with an acute abdomen.

**Key words:** post-coital pneumoperitoneum; vaginal trauma

## RÉSUMÉ

La déchirure vaginale conduisant à un pneumopéritoine après une hystérectomie ou une chirurgie est un phénomène bien documenté. Cependant, ce type de déchirure est extrêmement rare chez une jeune femme à la suite de relations sexuelles normales. Nous présentons un tel cas. Une jeune femme âgée de seize ans a été reçue au département d'urgence pour un abdomen aigu. Les résultats des radiographies indiquaient la présence de gaz sous le diaphragme, évoquant la possibilité d'une perforation intestinale. Les antécédents détaillés des activités sexuelles de la jeune fille indiquèrent la possibilité d'un traumatisme vaginal. Le diagnostic fut confirmé lors d'un examen sous anesthésie et la déchirure fut réparée. Une laparoscopie concomitante écarta toute autre blessure intra-abdominale. Le présent cas nous rappelle qu'un péritoine aigu peut se produire après des relations sexuelles et rappelle également l'importance de noter les antécédents sexuels détaillés et de faire un examen vaginal chez les jeunes femmes souffrant d'un abdomen aigu.

## Introduction

Vaginal rupture due to sexual intercourse rarely occurs in the young premenopausal woman.<sup>1,2</sup> However, it is well documented to occur after intercourse following vaginal or abdominal hysterectomy.<sup>3,4</sup> The patient presents with an acute abdomen with signs of small bowel perforation, thus confusing the clinical picture. The diagnosis may be diffi-

cult. A detailed sexual history is extremely important and provides a good clue. We would like to report one such case of post-coital pneumoperitoneum.

## Case report

A 16-year-old young woman (para 0) presented to the accident and emergency department with severe periumbili-

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cal and lower abdominal pain, and vaginal bleeding. She had had amenorrhea for 2 months but took oral contraceptives continuously during this period. Her pregnancy test ( $\beta$ hCG) was negative. Her past medical history was unremarkable.

On examination her pulse rate was 98 beats/min, blood pressure 112/83 mm Hg, oxygen saturation 100% on air, temperature 37.4°C, and respiratory rate 20 breaths/min. The lower abdomen was distended, markedly tender, with guarding and rebound tenderness. Speculum and vaginal examination were difficult and unsatisfactory due to the significant tenderness. Speculum examination had to be discontinued because instrumentation itself was associated with considerable pain. A gentle vaginal examination revealed fullness in the fornices and significant tenderness. Serum biochemistry, including liver function, amylase, creatinine, urea and electrolytes, was entirely normal. A full blood count showed a white cell count of 15 900/cc with polymorphs being 14 600/cc. Results of an abdominal x-ray showed gas under the diaphragm.

Elicitation of a detailed sexual history suggested that she was in a stable relationship. The bleeding followed consensual sexual intercourse with her regular partner. She was specifically asked about the use of foreign objects or drugs at the time and denied having used any.

The patient underwent an examination under anesthesia, which revealed a transverse 4-cm posterior vaginal wall laceration extending into the pouch of Douglas. A diagnostic laparoscopy performed at the same time ruled out any other intra-peritoneal or bowel pathology. The tear was repaired with interrupted sutures of vicryl. The patient made an uneventful postoperative recovery and was discharged home the next day.

## Discussion

The most common cause of pneumoperitoneum is surgical or iatrogenic procedures leading to puncture of the peritoneum.<sup>5</sup> Another common cause is perforation of a hollow viscus,<sup>5</sup> often as a complication of peptic ulcer disease, or even rarely a perforated appendix<sup>6</sup> or small bowel diverticulum.<sup>7</sup>

The patient presented with an acute abdomen and gas under the diaphragm, thus arousing a suspicion of small bowel perforation. Pneumoperitoneum is seldom encountered by the gynecologist in non-surgical cases. It has been known to occur following coitus in post-hysterectomy patients.<sup>3,4</sup> It is extremely uncommon following conventional coitus in a young woman who has not had any previous surgery. The fact that vaginal bleeding and clinical symp-

toms were preceded by sexual intercourse does point toward the possibility of vaginal trauma in this case. This emphasizes the importance of taking a good gynecological and sexual history.

A review of the literature suggests that pneumoperitoneum may occur, but rarely, after coitus,<sup>1</sup> orogenital sex<sup>8</sup> and even sometimes following exercise in the postpartum period.<sup>9</sup> An acute abdomen may<sup>1,10</sup> or may not<sup>11</sup> be a presenting feature. Vaginal evisceration also may<sup>1,2</sup> or may not<sup>10,11</sup> complicate the clinical picture. Patients who have pneumoperitoneum without vaginal injury or evisceration have been managed conservatively.<sup>11</sup> Different theories postulated for post-coital vaginal lacerations include penile–vaginal disproportion, abnormal muscle spasm<sup>12</sup> and inadequate expansion of the vaginal vault at coitus.<sup>1</sup>

Bowel perforation and vaginal injury were the important differential diagnoses in this case. Although ectopic pregnancy is a possibility that should always be kept in mind in a sexually active woman with an acute abdomen, a negative  $\beta$ hCG ruled this out. The diagnosis however, could only be confirmed on examination under anesthesia. It is important to rule out any intra-abdominal injury in these circumstances, especially if there is a history of use of foreign objects at the time of intercourse. We opted for a laparoscopy because it offered a minimally invasive approach, but a laparotomy may also be performed in such situations.<sup>1,10</sup>

## Conclusion

When assessing young women presenting as an emergency with an acute abdomen, it is important to have a high index of suspicion and consider all etiologies, including coital trauma. Gas under the diaphragm does not always mean small bowel perforation. A detailed gynecological and sexual history is important and provides a good clue. Vaginal examination is essential and should be done. In practice, a definite preoperative diagnosis may be difficult, and examination under anesthesia may be necessary.

**Competing interests:** None declared.

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