Case report

Contraceptive ring-induced intestinal obstruction

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Case presentation

A post-menopausal 59-year-old female presented with abdominal pain for 1 day. Relevant past medical history included two children born via spontaneous vaginal delivery >30 years ago and two times insertion of intrauterine contraceptive ring >20 years ago. On examination, she had umbilical and right-sided abdominal tenderness, and rebound tenderness with guarding in the right iliac fossa. On auscultation, hyperacoustic bowel sounds were present. Abdominal X-rays showed two areas of small bowel gas–fluid levels and two contraceptive rings were apparent on the X-ray—one in the middle of the pelvic cavity while the other was located in the right lower quadrant (Figure 1A, arrow). She was kept nil-by-mouth, commenced on antibiotics and gastrointestinal decompression. After 1 day, her symptoms did not improve and an abdominal computer tomography (CT) scan was performed, which showed numerous loops of dilated small bowel, and one contraceptive ring located inside the affected small bowel (Figure 1B, arrow). In light of this, the patient underwent a laparotomy that revealed two uterine rings—one still inside in the uterus and the other in the abdominal cavity of which 30 cm of small bowel had herniated through the 2 cm ring lumen (Figure 1C, arrow) leading to bowel ischemia. The contraceptive ring was clipped, and taken out. About 30 cm of ischemic herniated bowel was excised and an ileocecal anastomosis was performed. She made an uneventful post-operative recovery and was discharged 10 days later.

Discussion

Previous studies have reported that intrauterine rings can move outside of the mucous layer of uterus such as into the muscular layer of the uterine, pouch of Douglas, bladder, adnexa and colon.1–6 We think that the rings in our case migrated into the abdominal cavity because of uterine perforation, which can be divided into acute or chronic perforation. Acute perforation happens within several days of placement.3 Cases of chronic perforation present to hospital months, or even years after the initial ring placement, such as in previous reports4–6 and in our case.

In additional, several Chinese language papers have reported that the contraceptive ring can move into abdominal cavity and cause strangulated intestinal obstruction.7–9 Wang et al. reported that 15 cm distal ileum was herniated through a contraceptive ring, which induced bowel obstruction. One-fifth of the uterine muscle wall had herniated through the ring. A possible cause could be incorrect technique and placement when inserting the ring.7 Wu and Abd8 also report two cases of severe abdominal pain during the ring placement and subsequent intrapelvic bleeding due to the ring being placed in the peritoneal cavity through minute rupture of the uterine. Zhang et al.9 report another case that get bowel instruction 1 year after the ring placement. In all cases, the patient complained of abdominal pain during the ring placement.

Papers10 outside China report one case of contraceptive ring-induced intestinal obstruction. Haspels
suggested that closed type intrauterine rings should be abandoned after reporting the 21st known case of contraceptive ring-induced intestinal obstruction. Haspels reported that one and a half meters of ileum had herniated through the ring that had migrated into the abdominal cavity. The authors thought that factors contributing the migration of the ring were the inaccurate assessment of the position of the uterus, the manner in which the ring was introduced, the type of the device and the inserter used and the consistency of the uterine wall. No other information about the placement of the rings can be found in the Haspels' study.10

Unlike in previous cases, our patient did not report abdominal pain or any difficulty during her initial ring placement. With two rings found in the X-ray, one inside the peritoneal cavity, the other in the uterus, which has not been touched during the operation, we assume that the patient underwent ring placement on two different occasions.

Intrauterine devices (IUDs) have been used throughout the world for more than three decades. It is currently the most popular method of birth control in China, used by >40% of women of the reproductive age.11,12 The most commonly used IUD in China is the stainless steel ring that has been available since the 1950s.11,13 The high proportion of closed ring can be confirmed further by Cheung's study, which shows that during 2004–8, a total of 182 cases of Chinese IUD were removed, 106 of which are stainless steel ring14. The prevalence of this type of ring in China may be due to cheaper price of the ring and a long clinical history of usage. As more Chinese women study or work overseas, clinicians may come across more women with ring-shaped IUDs. Therefore, a high degree of vigilance should be maintained when patients present with IUD-induced complications.

In conclusion, when patients with an intrauterine contraceptive ring are admitted with abdominal

**Figure 1.** The contraceptive ring can be seen in the X-ray (A) and CT (B), and it had been taken out successfully in the operation from the herniated bowels (C)
pain and are found to have bowel obstruction, IUD-induced bowel obstruction should be considered as a cause. A high index of suspicion should be held especially, if the initial ring placement was difficult.

Conflict of interest: None declared.

References