

Pelvic actinomycosis masquerading as an acute abdomen from a small bowel perforation

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ABSTRACT

Pelvic actinomycosis is an extremely rare disease which may complicate long-term intrauterine contraceptive device (IUCD) use. Its timely recognition is important as clinical and radiological signs may mimic other intra-abdominal pathology and lead to radical and unnecessary surgery. We report a 50-year-old woman with pelvic actinomycosis resulting from a neglected intrauterine device, which was left in place for 20 years. The signs and symptoms at presentation were consistent with acute peritonitis from a perforated viscus. A perforated segment of the small bowel was suspected intraoperatively and resection was performed. The diagnosis was only revealed on subsequent histopathological examination of the surgical specimen. A high index of suspicion for this rare but devastating condition must be maintained in any woman with an IUCD and who presents with a surgical abdomen. Diligence in replacing IUCDs at recommended intervals and adherence to "missing threads" protocols may prevent these sequelae.

Keywords: *Actinomyces israelii*, actinomycetes, intrauterine contraceptive device, pelvic actinomycosis

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INTRODUCTION

Actinomyces israelii is a gram-positive, anaerobic, non-acid fast filamentous bacterium. It is normally present in the vagina, oropharynx and gastrointestinal tract.⁽¹⁾ Pelvic actinomycosis is a rare, chronic suppurative and granulomatous disease that spreads irrespective of anatomical barriers.⁽²⁾ We report an unusual presentation of this condition in a woman in whom a neglected intrauterine contraceptive device (IUCD) was left in place for 20 years.

CASE REPORT

A 50-year-old woman presented to the accident and emergency department with a one-month history of lower abdominal pain and fever. There had been an acute worsening of her symptoms three days prior to



Fig. 1 CT image shows inflammatory stranding of fat and a tubo-ovarian mass (arrow).



Fig. 2 CT image shows a loop of small bowel adherent to the anterior abdominal wall with a bowel wall abscess containing a pocket of gas (arrow). The IUCD is visible in the uterine cavity.

presentation. Clinical examination revealed lower abdominal tenderness in the left iliac fossa. Per rectal examination was normal. Computed tomography (CT) of the abdomen and pelvis (Figs. 1 & 2) showed inflammatory stranding of the omentum. A segment of the small bowel showing an inflamed bowel wall and a left pyosalpinx were seen. A full blood count showed leucocytosis. The clinical suspicion was that of a perforated viscus and ensuing peritonitis. A laparotomy was performed.

Intraoperatively, an omental mass and loop of small bowel were adherent to the anterior abdominal wall. No surgical plane could be found between the bowel wall and the overlying omentum, which was indurated. This segment of the small bowel and overlying omentum

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was resected *en bloc*. A left salpingo-oophorectomy was performed for the left pyosalpinx. A large-bore drain was placed in the pelvis and the abdomen was closed.

Histological examination of the resected specimen showed a full-thickness bowel wall abscess with filamentous bacteria consistent with actinomycosis. The bacteria could also be demonstrated within the left pyosalpinx. The patient subsequently revealed that she had an IUCD inserted at 30 years of age. When the device was due for removal at 35 years of age, she visited her doctor who could not visualise the IUCD threads on a speculum examination. It was assumed that the device had been expelled and no further follow-up was arranged. The patient was referred to an infectious disease physician and made a full recovery after a long-term high-dose penicillin treatment and removal of the IUCD. She remained well on follow-up.

DISCUSSION

Though frequently cited, the association between IUCD use and development of pelvic actinomycosis is a controversial one. It is accepted that the risk of pelvic actinomycosis resulting from IUCD use is very low. Only about 92 reported cases exist in the published English language literature, despite 30 million patient-years of IUCD use.⁽³⁾ In addition, many of these reported IUCD-associated cases have the diagnosis based on the normal microbiological finding of actinomycetes in the vagina. A distinction should be made between this mere identification of actinomyces-like organisms (ALOs) on a cervical smear in an asymptomatic woman and the development of pelvic actinomycosis. The former is a common finding reported in up to 20% of IUCD users,⁽⁴⁾ as actinomycetes are part of the normal genital flora. Pelvic actinomycosis, on the other hand, is a serious, debilitating infection requiring long-term antibiotic therapy and incurring significant morbidity. Such is the rarity of pelvic actinomycosis that even when ALOs are identified on the cervical smears of asymptomatic IUCD users, experts currently advocate that there is no need for removal of the device or antibiotic therapy.⁽⁵⁾ This view is also endorsed by the United Kingdom Family Planning Association.⁽⁶⁾ However, it has been suggested that the risk of pelvic actinomycosis may be higher with prolonged use of an IUCD.⁽⁷⁾

This case is unusual in that the patient presented with signs and symptoms mimicking an acute abdomen. The typical chronic symptoms of pelvic actinomycosis, such as lethargy and weight loss were not present. A notable finding during surgery was the absence of the usual surgical planes between the bowel wall abscess and overlying omentum. The term “woody induration” has been used to describe the characteristic fibrotic inflammatory response to actinomyces.⁽⁸⁾ The absence of surgical planes, as in this patient, is due to infiltrative tissue damage as a result

of the release of proteolytic enzymes by the organism. This phenomenon may result in the condition of being mistaken for a “frozen pelvis” from a pelvic malignancy and unnecessary radical surgery may be performed.⁽⁹⁾

Adherence to established protocols may have prevented this sequelae. While the cause-effect association between IUCD use and pelvic actinomycosis is controversial, there is evidence to suggest that prolonged use of a device without change may predispose the patient to it. In this patient, the device was assumed to have been expelled when the IUCD threads could not be visualised on a speculum examination. Clearly, this assumption was incorrect and contributed to the sequelae. Standard “missing threads” procedure stipulates that an ultrasound scan of the pelvis should be arranged in these cases, to confirm whether the device is *in utero* with the threads in the endocervical canal.⁽⁶⁾ If no device is seen in the uterine cavity, an abdominal radiograph which includes the pelvis, is the next step, as translocation of IUCDs through the uterine wall and into the peritoneal cavity is possible. Only when both the ultrasound scan and abdominal radiograph fail to detect the device can it be safely assumed that the device has been expelled.

Awareness of this rare condition is the key to making the diagnosis. The signs of pelvic actinomycosis are non-specific. This case illustrates that the clinical presentation can be varied. As diagnostic imaging modalities, such as CT, are increasingly being performed in patients presenting with a surgical abdomen, the presence of an IUCD and evidence of an inflammatory intra-abdominal process should arouse suspicion. Ultimately, surgery may still be necessary to exclude other intra-abdominal pathology. However, maintaining a high index of suspicion for this condition will prevent unnecessary radical surgery for presumed pelvic malignancies.

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