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# An Unusual Case of a Filshie Clip Presenting as a Bladder Wall Abscess 12 Years After Sterilization

## Authors' Contribution:

Study Design A  
Data Collection B  
Statistical Analysis C  
Data Interpretation D  
Manuscript Preparation E  
Literature Search F  
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**Conflict of interest:** None declared

**Patient:** Female, 52-year-old  
**Final Diagnosis:** Bladder abscess caused by Filshie clip  
**Symptoms:** Abdominal pain  
**Medication:** —  
**Clinical Procedure:** —  
**Specialty:** Obstetrics and Gynecology

**Objective:** Unusual clinical course

**Background:** There is growing evidence suggesting that Filshie clip migration is a rare but significant late complication following tubal sterilization. Although most women are asymptomatic, clip migration can result in serious morbidity such as abscess formation and be a source of sepsis years later.

**Case Report:** A 51-year-old woman presented with 2-week history of worsening right flank pain with fever and chills, unresponsive to oral antibiotics. CT imaging showed a 4-cm anterior bladder wall mass with a tubal ligation clip within, initially suspicious for a tumor, with secondary infection. Cystoscopy was unremarkable and tumor markers were negative. A subsequent CT urography confirmed the finding of right adnexal abscess with ligation clip within, suggesting a diagnosis of pelvic inflammatory disease. Due to failure of conservative management, she underwent a diagnostic laparoscopy, which was then converted to an exploratory laparotomy due to dense omental adhesions. A Filshie clip was found within the bladder wall abscess and removed. An inadvertent bladder dome perforation was repaired. Pain and fever resolved after the operation and she was discharged home on post-op day 4 with an indwelling catheter. A micturating cystogram a month later showed no extravasation of contrast and the catheter was removed.

**Conclusions:** This case report highlights the importance of considering Filshie clip migration as a differential diagnosis vs. pelvic inflammatory disease in women without other risk factors and who had previously undergone tubal ligation. Women should be made aware of this potential, rare late complication and its serious morbidity, which may occur years later.

**MeSH Keywords:** Abscess • Laparotomy • Sterilization, Tubal

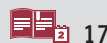
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## Background

There is growing evidence suggesting that Filshie clip migration is a rare but significant late complication following tubal sterilization. Although most such cases are asymptomatic, clip migration can result in serious morbidity such as abscess formation and be a source of sepsis years later. This case report highlights the importance of keeping Filshie clip migration as a differential diagnosis vs. pelvic inflammatory disease in women without other risk factors and who had previously undergone tubal ligation.

## Case Report

A 51-year-old woman initially presented to a general district hospital emergency department (ED) with 2-week history of worsening right-side flank pain, colicky in nature, associated with dysuria, fever, and chills. There was no associated frequency, urgency, or gross hematuria. An X-ray of kidneys, ureters, and bladder (KUB) showed no definite renal calculus, but noted tubal ligation clips in the pelvis. She was discharged home with a course of antibiotics as treatment for a urinary tract infection and was followed up in urology clinic 10 days later.

On follow-up, her fever and abdominal pain persisted despite completing 10 days of oral antibiotics, and was subsequently admitted to the hospital with the provisional diagnosis of right-side pyelonephritis.

She had 1 normal vaginal delivery 12 years ago, followed by immediate postpartum tubal sterilization with Filshie clips, done within 6 h delivery, which involved a sub-umbilical 3-cm transverse incision on her abdomen. Each tube was ligated with a Filshie clip through the open incision. The incision was then closed in layers. She had no other significant past medical or surgical history.

She was febrile on admission, with temperatures above 38.5°C. On examination, she was normotensive with tenderness over the right lumbar and iliac fossa regions, but with no rebound tenderness or guarding. A speculum examination revealed a normal cervix and vagina. Vaginal examination showed a 12-week-sized uterus with fullness in the right adnexa, but no cervical excitation.

A computed tomography (CT) KUB done on admission showed a 4-cm right anterior urinary bladder wall mass with a tubal ligation clip, suspicious for a tumor with secondary infection (Figure 1). There were no urinary calculi and no changes on imaging suggestive of pyelonephritis. Her tumor markers of CEA, CA 125, and LDH were normal. A flexible cystoscopy showed no bladder lesions or cystitis, but noted external compression over the anterior bladder wall. Urine cytology showed no malignant cells. A subsequent post-contrast CT urography showed a rim-enhancing mass abutting the anterior bladder wall containing the right tubal ligation clip, suggestive of a right adnexal abscess arising from pelvic inflammatory disease (PID) (Figure 2).

She was then transferred to our hospital (KK Women's and Children's Hospital O&G Department) for further management of her pelvic inflammatory disease. An ultrasound (US) pelvis confirmed a 5.6×3.6×4.9 cm right tubo-ovarian abscess, on a background of a fibroid uterus. A full infectious diseases screen was done; she was found to be negative for sexually transmitted diseases, including chlamydia, gonorrhoea, HIV, hepatitis B, and syphilis. Urine and blood cultures were also negative.

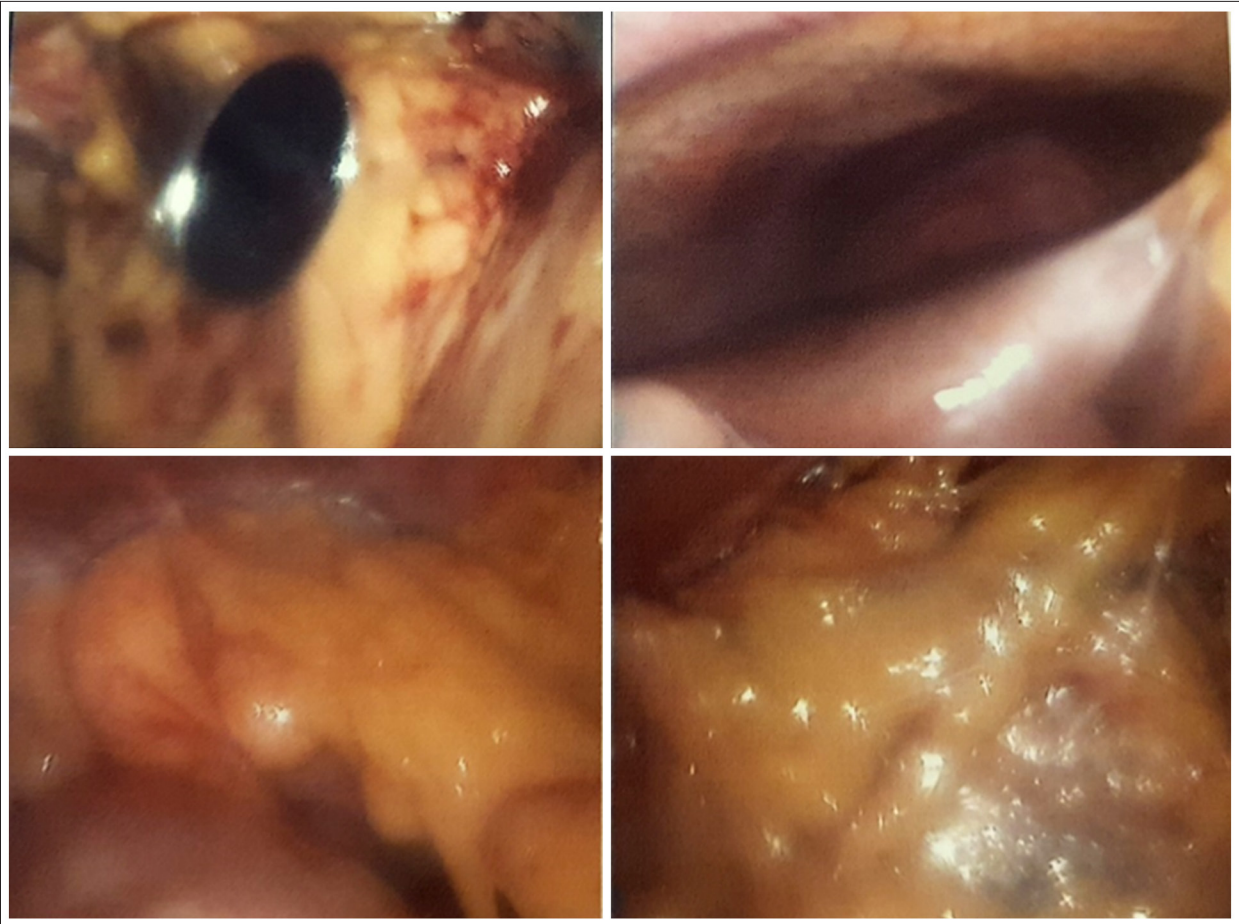
She was started on triple intravenous (IV) antibiotics (Ceftriaxone, Metronidazole, and Gentamicin) and oral doxycycline, as treatment for PID. As she continued to spike fevers of  $T_{max}$  39°C despite 4 days of IV antibiotics, an ultrasound-guided drainage of her right tubo-ovarian abscess was



**Figure 1.** Filshie clip within bladder wall abscess in CT kidneys ureters bladder.



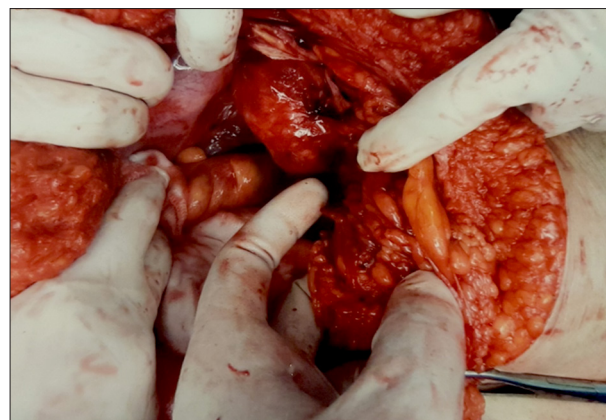
**Figure 2.** Filshie clip within bladder wall abscess in CT urography post-contrast.



**Figure 3.** Dense omental adhesions seen on initial diagnostic laparoscopy.

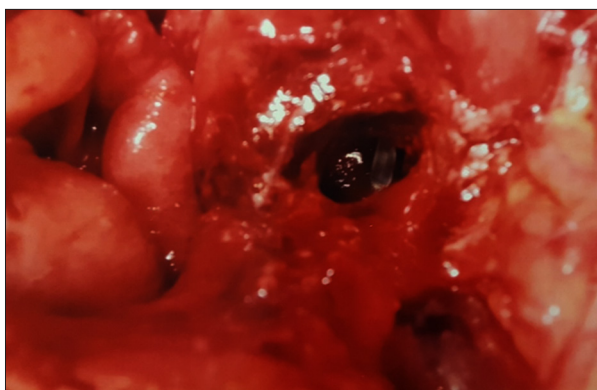
attempted, but the contents could not be aspirated because the right adnexal collection was mostly solid. A repeat US pelvis showed an increase in size of the abscess to 7.6 cm 5 days later. Inflammatory markers were also persistently raised. A decision was made to perform surgical drainage in view of the failed conservative management.

She initially underwent a diagnostic laparoscopy, which was quickly converted to midline exploratory laparotomy due to presence of dense omental adhesions to the anterior abdominal wall and bladder (Figure 3). A 4-cm right bladder wall abscess was seen separately from the right fallopian tube and ovary (Figure 4). Pus was expelled out of the cavity after dissecting the omentum off the bladder wall abscess. This resulted in an inadvertent bladder dome perforation, which was subsequently repaired. A Filshie clip was found deep in the bladder wall abscess cavity and removed (Figure 5). The omentum covering the abscess and a urachal remnant were taken for biopsy. Her right fallopian tube was also removed for histology, as it appeared inflamed intraoperatively (Figure 6). A surgical drain was left *in situ* and the abdomen was closed in layers.



**Figure 4.** A 4-cm anterior bladder wall abscess.

The patient made an uneventful recovery postoperatively, with down-trending inflammatory markers. Her fever and pain also resolved. She was discharged home well on post-op day 4 with an indwelling catheter for 3 weeks. Her surgical drain was removed prior to hospital discharge. A micturating cystogram 1 month later showed no extravasation of contrast, and the catheter was removed.



**Figure 5.** Filshie clip seen within bladder wall abscess.

The histology of the omentum and urachal remnant showed acute and chronic inflammation with areas of ulceration and fat necrosis, while that of the right fallopian tube showed serosal acute-on-chronic inflammation and surface ulceration. No malignancy was seen in any of the 3 tissues.

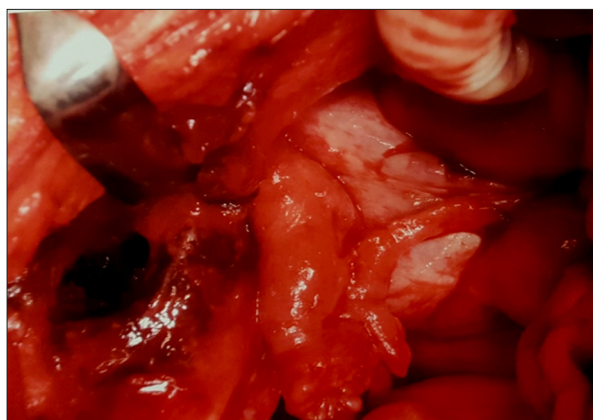
## Discussion

Tubal ligation with Filshie clips is a common sterilization method among women who have completed families and has been in use since 1981 [1]. It has a relatively low failure rate of 0.5% [2]. It is a 12.7×4 mm titanium clip with silicone rubber jaw lining. It works by initially causing tubal avascular necrosis, which then leads to 2 healed occluded stumps. In most cases, the clip becomes peritonealized and remains *in situ*.

However, it is thought that slow peritonealization creates a chance for migration of Filshie clips [3]. Most cases remain undetected, without any significant morbidity. Filshie estimates that up to 25% of Filshie clips migrate with time, but stay mainly within the peritoneum, without causing symptoms [4].

Rarely, Filshie clips have been noted to migrate across tissue planes, with an incidence rate estimated at 0.6 per 1000 women by the US FDA in 1996 [5]. Abscess formation, fistulation, and adhesion formation were some of the common complications arising from clip migration to other tissue sites, as reported by most studies, and the time to presentation varied from 6 weeks to more than 20 years following tubal ligation [6].

To date, there are more than 24 case reports of Filshie clip migration to various sites of the pelvis, including the bladder [6], anterior abdominal wall [7], peritoneal cavity [8], colon [9], vagina [10], perianal region [11], and groin [12], most of which required surgical removal, especially in cases of abscesses. The urinary bladder is one of the most common sites of migration, with 5 other cases reported to date. Three cases



**Figure 6.** Inflamed-looking right fallopian tube posterior to bladder wall abscess.

had spontaneous urethral expulsion of the Filshie clip [13–15], while the other 2 required surgical removal [6].

The mechanism of clip migration is still not well understood, given normal pelvic anatomy at the time of sterilization. It has been postulated that the Filshie clip, despite being made from an inert material, induces a low-grade inflammatory response within the peritoneum, with subsequent adhesion formation, allowing its eventual erosion into the bladder wall [13]. This is also supported by early studies in primates, showing that Filshie clips can induce a foreign body inflammatory response [17], and this is clinically evident in the increased risk of ectopic pregnancy after tubal sterilization due to tissue reaction [2].

The present report adds to the small but growing literature showing that clip migration is a rare but significant late complication following sterilization. It may mimic a bladder wall abscess or a tubo-ovarian abscess, as in our case. Women should be adequately counselled about the early and late risks of this popular method of female sterilization, especially with the delayed symptomatic presentation of clip migration years later.

## Conclusions

In conclusion, Filshie clip migration should be considered as a source of sepsis in the differential diagnosis of pelvic pain and fever in women with a history of tubal ligation. Women should be counselled regarding the significant risk of clip migration (up to 25%), although most remain asymptomatic. They should also be made aware of the potential rare late complication of clip migration across tissues and its serious morbidity such as abscess formation, which can occur years later.

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## References:

1. Filshie GM, Casey D, Pogmore JR et al: The titanium/silicone rubber clip for female sterilization. *Br J Obstet Gynaecol*, 1981; 88: 655–62
2. Royal College of Obstetricians and Gynaecologists (RCOG). Female sterilisation. Consent Advice No. 3 February 2016
3. Amu O, Husemeyer RP: Migration of sterilisation clips: Case report and review. *Br J Fam Plann*, 1999; 25: 27–28
4. Filshie GM: Long-term experience with the Filshie clip. *Gynaecol Forum*, 2002; 7: 7–10
5. Obstetrics and Gynecology Devices Panel of the Department of Health and Human Services Public Health Service, Food and Drug Advisory panel meeting February 26, 1996
6. Gad N, Aziz R, Siwicki K: Filshie clip migration into wall of urinary bladder presenting with acute abdominal pain. Case report and review of English literature: From 1990 to April 2009. *Pelvipereineology*, 2010; 29: 84–87
7. Tan B, Chong C, Tay EH: Migrating Filshie clip. *Aust NZ J Obstet Gynaecol*, 2004; 44: 583–84
8. Loddo A, Botchorishvili R, Mage G: Migration of Filshie clip inside a small peritoneal defect. *J Minim Invasive Gynecol*, 2008; 15: 394
9. Connolly D, McGookin RR, Wali J, Kernohan RM: Migration of Filshie clips – report of two cases and review of the literature. *Ulster Med J*, 2005; 74: 126–28
10. Kale A, Chong YS: Spontaneous vaginal expulsion of Filshie clip. *Ann Acad Med Singapore*, 2008; 37: 438–39
11. Dua RS, Dworkin MJ: Extruded Filshie clip presenting as an ischio-rectal abscess. *Ann R Coll Surg Engl*, 2007; 89: 808–9
12. Mumme AM, Cham J: Filshie clip migration with multiple groin hernias: A case report. *J Med Case Rep*, 2015; 9: 187
13. Kesby GJ, Korda AR: Migration of Filshie clip into the urinary bladder seven years after laparoscopic sterilisation. *Br J Obstet Gynaecol*, 1997; 104: 379–82
14. Connolly D, McGookin RR, Wali J, Kernohan RM: Migration of Filshie clips – report of two cases and review of the literature. *Ulster Med J*, 2005; 74: 126–28
15. Palanivelu LM, B-Lynch C: Spontaneous urethral extrusion of a Filshie clip. *J Obstet Gynaecol*, 2007; 27: 742
16. Miliauskas JR: Migration of a Filshie clip into the urinary bladder with abscess formation. *Pathology*, 2003; 35: 356–57
17. Gupta AN, Chakravarti RN, Majumdar S et al: Pathological changes in Fallopian tubes following three different kinds of occlusive techniques in primates. *Contraception*, 1986; 33: 245–55

## Conflict of interest

None.