

Migrated Tubal Ligation Clip Requiring Laparoscopic Surgical Removal - A Case Report

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Abstract

Introduction: Tubal ligation is currently one of the most common contraception methods used globally. The procedure may be performed laparoscopically or via hysteroscope. It can be performed immediately after childbirth, in the postpartum period, or at a time unrelated to pregnancy. Advances in technology and changes in social opinion have contributed to the increasing popularity of tubal ligation as a method of contraception.

Case presentation: A 49-year-old female presented with a three-day history of worsening abdominal pain, mainly in the right iliac fossa (RIF) with radiation to both flanks. The patient had a history of previous tubal ligation. On examination her abdomen was soft but tender with maximal tenderness in the RIF. The examination was positive for rebound tenderness and involuntary guarding. Initial investigations included blood tests which revealed an elevated white blood cell (WBC) count of 15.8, elevated neutrophils of 13.06, and an elevated CRP of 61.6. Computed tomography of abdomen and pelvis (CTAP) showed a focal inflammatory change in the greater omentum just superior to the mid transverse colon. Differential diagnoses considered included an omental infarction, diverticulitis or focal perforation, or a metastatic deposit.

Procedure: The patient was consented and brought to the operating theatre for laparoscopy. On inspection there was no evidence of omental infarction, diverticulitis, focal perforation, or metastatic deposits. One of the patient's Filshie clips was found to be embedded in the greater omentum and was removed with fenestrated grasper and blunt dissection from the omentum.

Discussion: Tubal ligation is a method of permanent contraception that is growing in popularity for females who have completed their families. Migrated Filshie clips is a common phenomenon that can result in failure of contraception, Furthermore, migration of Filshie clips can lead to abscess formation, and acute and chronic abdominal pain, requiring hospital admission and surgical intervention.

Conclusion: This case report highlights that Filshie clip migration should always be considered as a possible differential in the patient presenting with acute or chronic abdominal pain with a history of tubal ligation. Laparoscopy proved to be vital in confirming the diagnosis, highlighting the importance of clinical judgement in the context of ambiguous CT findings.

Keywords: Tubal ligation; Permanent contraception; Laparoscopy; Migrated Filshie clips

Abbreviations: CRP - C-Reactive Protein; CTAP - Computed Tomography of Abdomen and Pelvis; D&C - dilation And Curettage; DCIS - Ductal Carcinoma In Situ; FBC - Full Blood Count; GP - General Practitioner; IV – Intravenous; LFTs - Liver Function Tests; LUTS - Lower Urinary Tract Symptoms; NPO - Nil Per Os; NSAID - Nonsteroidal Anti-Inflammatory Drug; PPI - Proton Pump Inhibitor; RIF - Right Iliac Fossa; U&E - Urea and Electrolytes; WBC - White Blood Cell

Introduction

Female permanent contraception, also known as tubal ligation, can be achieved by excision i.e., complete, or partial salpingectomy, or tubal occlusion such as electrosurgical desiccation, silicone band, silicone lined titanium clip (Filshie clip), or spring clip. As of 2019 it was the single most common contraception method used in the United States [1]. The procedure may be performed immediately after childbirth, in the postpartum period, or at a time unrelated to a pregnancy known as interval permanent contraception. Today it is commonly performed at the time of caesarean section or via laparoscopy in the interval period. It can also be achieved via hysteroscopy which does not require local or general anaesthetic. This involves the use of a hysteroscope to place a microinsert into each fallopian tube. Scar tissue then forms within the fallopian tube around the microinserts occluding them [2]. Advances in technology and changes in social opinion have contributed to the increasing popularity of tubal ligation as a method of contraception. Despite laparoscopic tubal ligation being generally considered as a minor and safe procedure to achieve permanent contraception, a number of complications have been recorded as a result of the procedure. These complications can occur intraoperatively, in the early postoperative phase, or following recovery. Complications in the intraoperative phase include those relevant to all abdominal and pelvic laparoscopic procedures such as injury to the bowel, bladder, or major blood vessels [3-5]. Complications in the initial post operative phase include infection, and ileus [6]. Long-term complications can include unwanted pregnancy from failed procedures, menstrual alterations, and post tubal ligation syndrome which includes pain during coitus, lower back pain, premenstrual tension syndrome and also altered menstruation [6,7]. Here we present a case of a migrated Filshie clip resulting in abdominal pain. Migrating Filshie clips have been previously recorded in the literature resulting in failed sterilisation and chronic abdominal pain [8].

Case Presentation

A 49-year-old female was referred to the emergency department by her General Practitioner (GP). She presented with a three-day history of worsening abdominal pain. This pain was located mainly in the Right Iliac Fossa (RIF) with radiation to both flanks. She denied any nausea or vomiting, loss of appetite, dyspepsia, or Lower Urinary Tract Symptoms (LUTS). She admitted to associated headache at the time of presentation. She recently finished a course

of metronidazole for a vaginal infection and denied any sick contacts. She was admitted the previous year for duodenitis believed secondary to Nonsteroidal Anti-Inflammatory Drug (NSAID) use, which was managed conservatively with a Proton Pump Inhibitor (PPI). She failed to attend her follow up endoscopy appointment. She had a past medical history of pelvic congestion syndrome, haemorrhagic ovarian cysts, menorrhagia, pyelonephritis, and previous mycoplasma pneumonia. Past surgical history included right breast mastectomy for Ductal Carcinoma In Situ (DCIS) and latissimus dorsi with implant reconstruction, tubal ligation, traumatic laceration repair to right hand and inguinal hernia repair as an infant. She had a positive family history of bowel carcinoma which included maternal grandmother and maternal aunt. She had previous adverse reactions to ibuprofen and diclofenac. Her regular medications included venlafaxine. She lived at home with her husband and three children. She was a smoker with a 23-pack year history and drank approximately five units of alcohol per week. On examination the patient showed signs of abdominal pain, there were previous laparoscopy scars and evidence of previous mastectomy with reconstruction. There was no hernia or other abdominal abnormalities. The abdomen was soft with general tenderness and maximal tenderness in the RIF. The examination was positive for rebound tenderness and involuntary guarding. The cardiovascular and respiratory exams were unremarkable. Her vitals were also unremarkable with a respiratory rate of 20, SpO₂ 99% on room air, blood pressure 126/79, heart rate 82, and temperature 36.6.

Initial management consisted of nil per os (NPO), analgesia, Intravenous (IV) fluids, IV antibiotic treatment with amoxicillin/clavulanic acid and metronidazole, and IV PPI treatment with pantoprazole. Initial investigations included blood tests including a Full Blood Count (FBC), Urea and Electrolytes (U&E), Liver Function Tests (LFTs), amylase and C-Reactive Protein (CRP), which are shown in **Table 1** below. The blood tests revealed an elevated White Blood Cell (WBC) count of 15.8, elevated neutrophils of 13.06, and an elevated CRP of 61.6. An ECG was performed which was normal. An urgent Computed Tomography of Abdomen and Pelvis (CTAP) was performed. This showed the patient's tubal ligation clips (**Figure 1**), and a focal inflammatory change in the greater omentum just superior to the mid transverse colon (**Figure 2 and 3**). These images prompted differential diagnoses including an omental infarction, diverticulitis or focal perforation, or a metastatic deposit given previous DCIS diagnosis. The patient was consented and brought to the operating theatre for diagnostic laparoscopy ±laparotomy.

Table 1: Blood results on admission, showing elevated WBC, neutrophil count, and CRP.

Parameter	Result	Normal Range
White blood cells (WBC)	15.8	4.4–11.3 × 10⁹/L
Neutrophils	13.06	1.4–6.6 × 10⁹/L
Haemoglobin (Hb)	13.3	11.7–15.9 g/dL
Platelets	208	140–440 × 10 ⁹ /L
Sodium	138	132–144 mmol/L
Potassium	4.6	3.5–5.1 mmol/L
Chloride	106	95–108 mmol/L

Urea	4.6	2.8–8.4 mmol/L
Creatinine	71	49–90 umol/L
Alanine aminotransferase	10	30–120 U/L
Alkaline phosphatase	62	30–120 U/L
Total Bilirubin	19	2–20 umol/L
Amylase	32	30–120 U/L
C-reactive protein (CRP)	61.6	0–5 mg/L



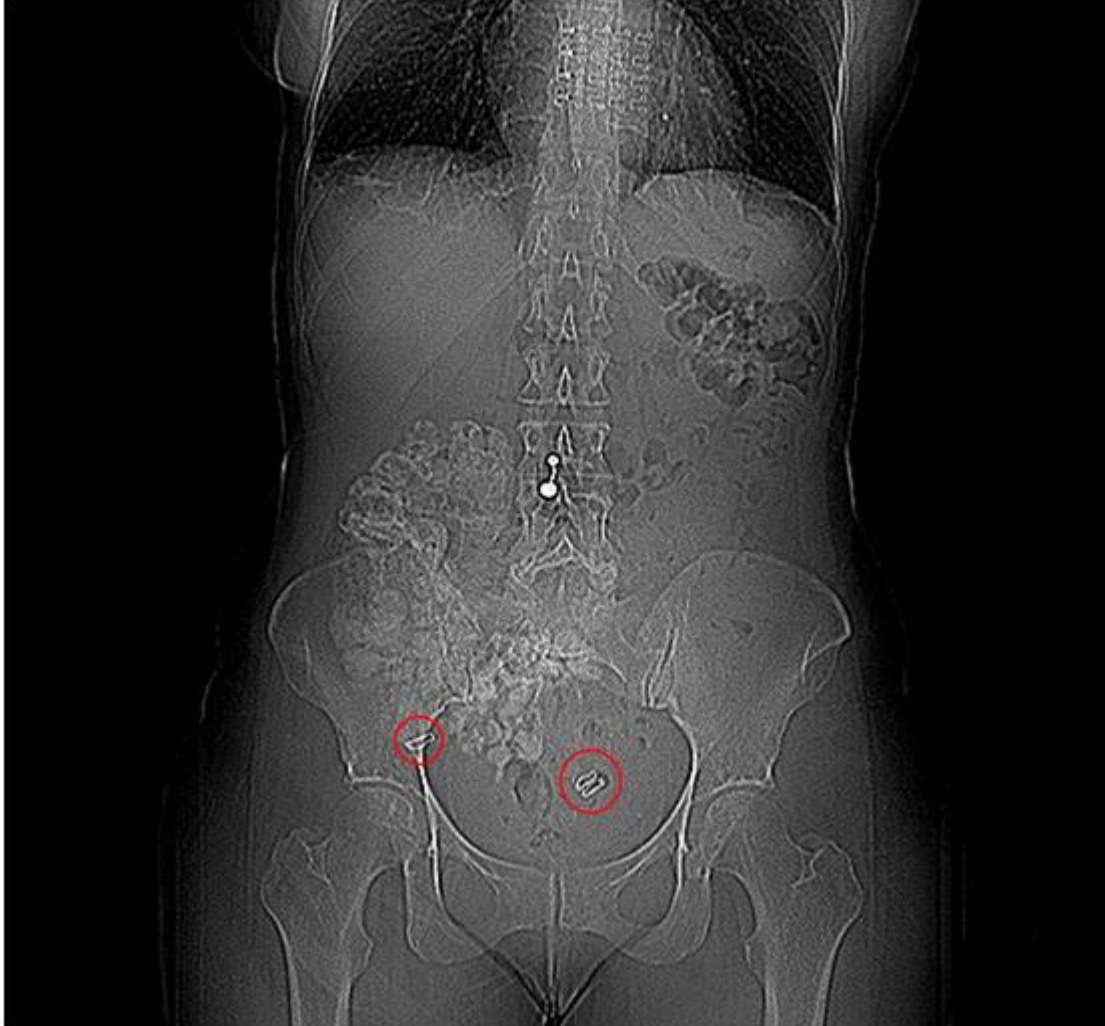


Figure 1: Coronal CT image showing tubal ligation clips (Filshie clips) in pelvis (highlighted by red circles) and migrated Filshie clip (highlighted by red circle and arrow) (Radiologist: Dr. Richard Kavanagh).



Figure 2: Axial CT image showing focal inflammatory change (red arrow) in the greater omentum just superior to the mid transverse colon (Radiologist: Dr. Richard Kavanagh).

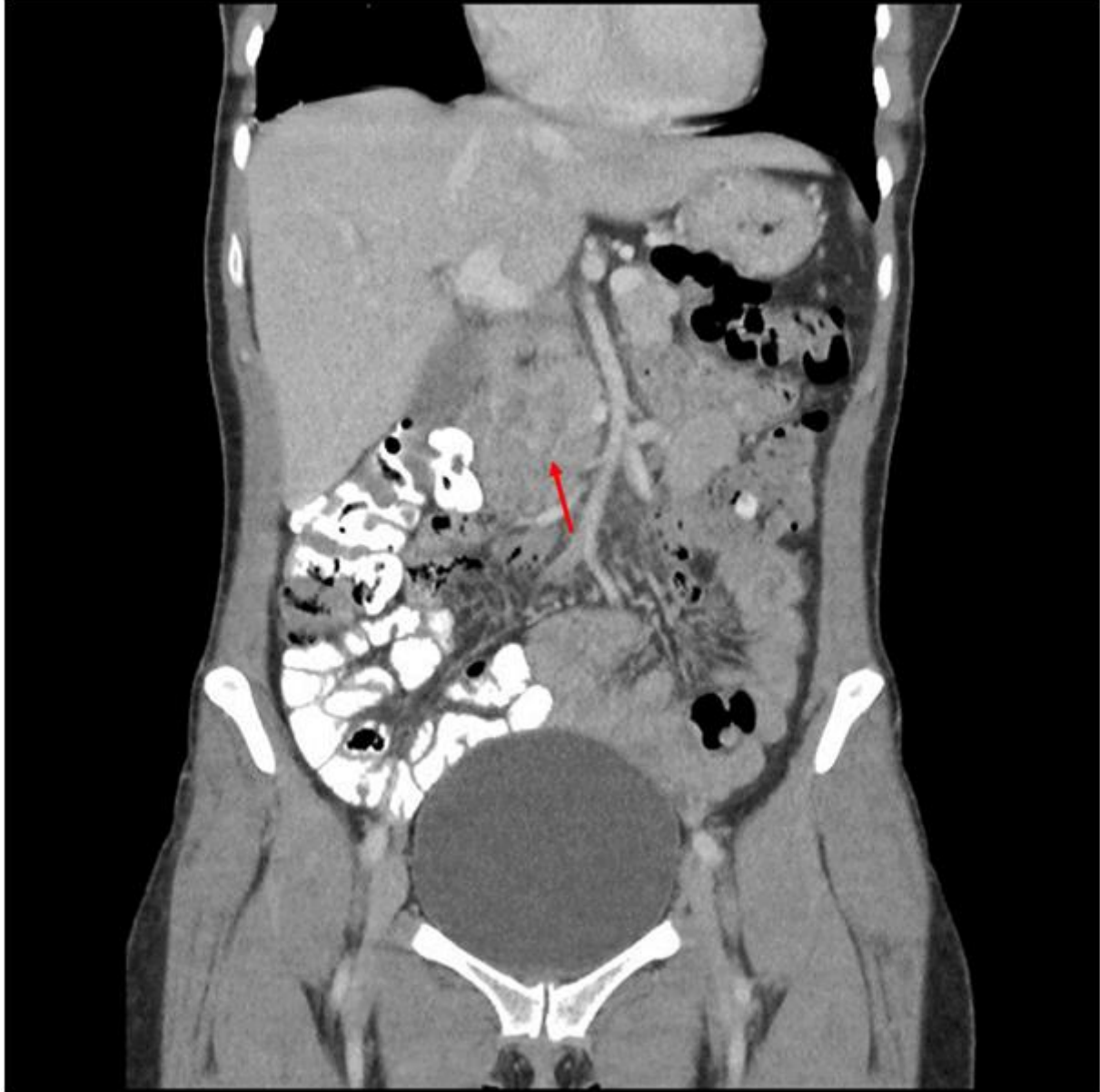


Figure 3: Coronal CT image showing focal inflammatory change (red arrow) in the greater omentum just superior to the mid transverse colon (Radiologist: Dr. Richard Kavanagh).

Procedure

The procedure was carried out by the consultant general surgeon on-call, who was assisted by the registrar on-call. The patient was anaesthetised and draped. Laparoscopy was performed with the first of three ports placed through a 1.5 cm longitudinal subumbilical incision. This initial port was placed in order to visualise the operating field and successfully place two additional accessory ports using a trocar. On inspection there was no evidence of omental infarction, diverticulitis, focal perforation, or metastatic deposits. However, one of the patient's Filshie clips was found to be embedded in the greater omentum (**Figure 4**) at the point of focal inflammation as visualised on the

CTAP. This was successfully removed laparoscopically using a fenestrated grasper and blunt dissection from the omentum (Figure 5). The Filshie clip was removed completely intact and measured approximately 14 mm (Figure 6). The fascia was then closed using loop 1 nylon sutures. The skin was closed with 3/0 Monocryl sutures.

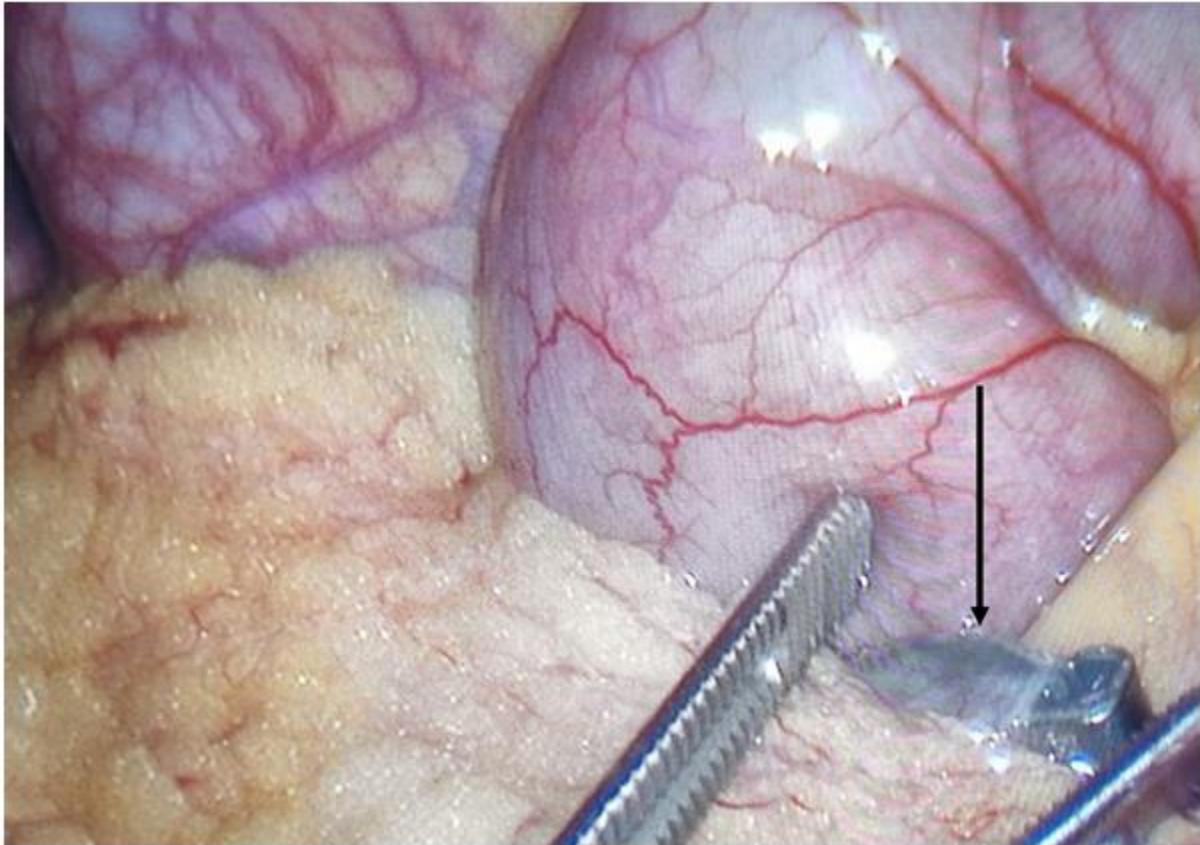


Figure 4: Intraoperative image showing free Filshie clip (black arrow) enclosed in omentum.

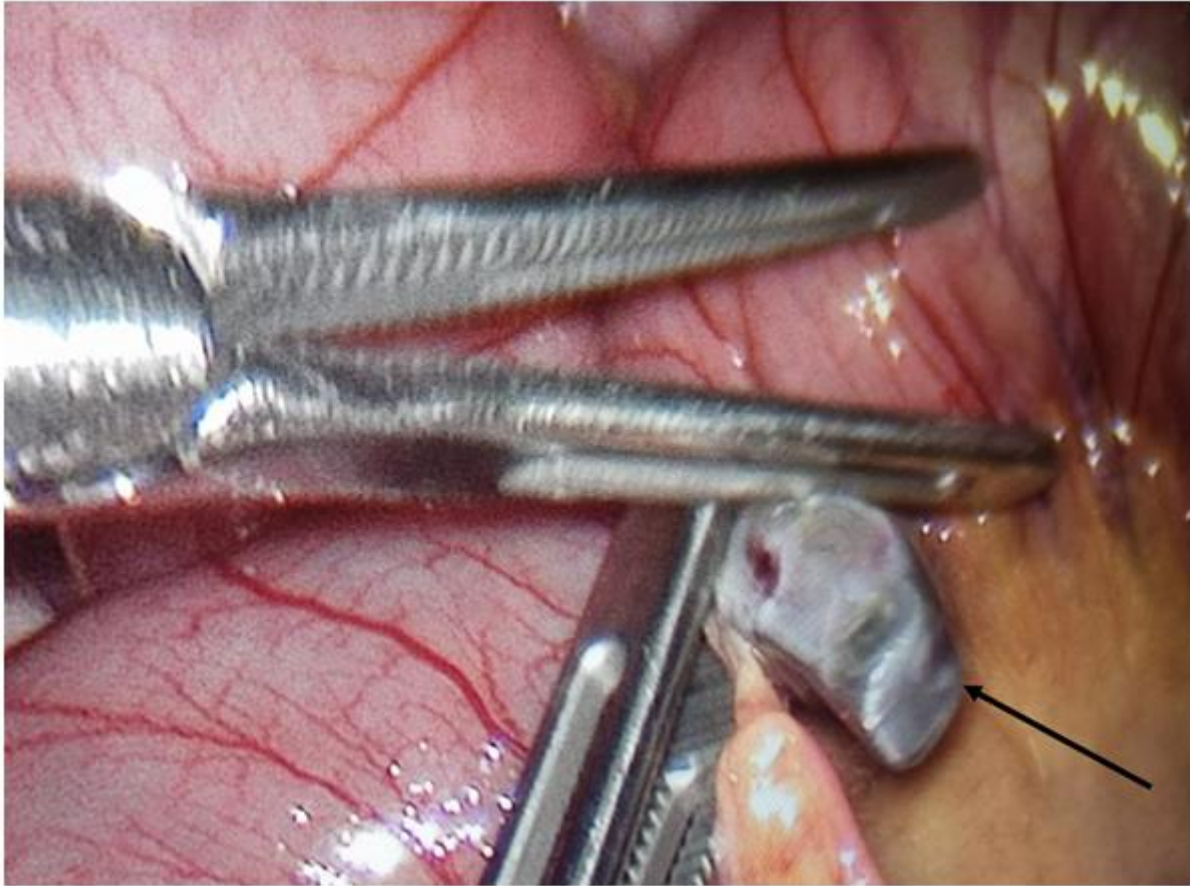


Figure 5: Intraoperative image showing free Filshie clip (black arrow) being bluntly dissected from omentum.



Figure 6: Postoperative image showing removed Filshie clip measuring approximately 14 mm.

The patient was extubated and transferred to the recovery ward post procedure. The patient was able to resume oral intake later the same day and was informed of the intraoperative findings. The patient suffered no post operative complications. She was discharged the following day and was referred back to her gynaecologist. The patient was advised to take additional precautions regarding contraception and was encouraged to speak with her GP.

Discussion

Here we presented the case of a patient with a three-day history of worsening abdominal pain. She presented with symptoms suggestive of an acute abdomen with a hospital admission within the past 12-months for duodenitis. She subsequently failed to attend her follow up endoscopy appointment. Furthermore, she had a background of DCIS treated with mastectomy. Clinical examination revealed signs of peritonitis with raised WBC count, neutrophils, and CRP. CTAP revealed a focal inflammatory change in the greater omentum providing a differential diagnosis of omental infarction, diverticulitis or focal perforation, or a metastatic deposit. Laparoscopy revealed a migrated

Filshie clip that had deposited in the greater omentum causing the patients symptoms. Tubal ligation is a method of permanent contraception that is growing in popularity for females who have completed their families. Commonly the uterine tubes are occluded with silicon lined titanium clips, known as Filshie clips. The jaws of the clips are clamped across the uterine tube and locked in place. A vascular necrosis follows resulting in the formation of two sealed stumps, thus blocking the ovum from being fertilised and reaching the womb [9]. Migrated Filshie clips is a common phenomenon that can result in failure of contraception [10]. They have previously been reported as a cause of abscess formation, and acute and chronic abdominal pain [11]. With advances in technology and changes in social opinion contributing to the increasing popularity of tubal ligation as a method of contraception. It is extremely important to consider migrated Filshie clips as a possible differential in acute or chronic abdominal pain in the patient that has undergone tubal ligation.

Furthermore, this case report outlines the importance of clinical intuition. The combination of the examination findings, elevated WBC, CRP and ambiguous CTAP findings warranted surgical investigation by laparoscopy. Ultimate removal of the Filshie clip from the greater omentum relieved the patient's symptoms.

Conclusion

We presented the case of a 49-year-old female with presentation of acute abdominal pain caused by a migrated Filshie clip. Migrated Filshie clips have been reported as a common phenomenon following tubal ligation. This highlights that Filshie clip migration should always be considered as a possible differential in the patient presenting with acute or chronic abdominal pain with a history of tubal ligation. Laparoscopy proved to be vital in confirming the diagnosis, highlighting the importance of clinical judgement in the context of ambiguous CT findings.

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