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Retained Pelvic Oxidized Regenerated Cellulose Mistaken for Dilated Fallopian Tubes

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Abstract

Surgicel is oxidized regenerated cellulose used successfully for haemostasis and prevention of adhesions for many years in different surgical disciplines. However, many reports of different related complications appeared in the literature. In this manuscript I am reporting on two patients who had surgicel gauze removed from the pelvis many months after surgery because of intolerable dull pelvic pain and intermittent low-grade fever. Transvaginal ultrasound scan examinations in both cases showed tubular masses with medium echogenicity in the pelvis which were mistaken for dilated fallopian tubes. Both patients responded well after laparoscopic surgicel removal and pelvic lavage with 2 litres of warm normal saline. This was followed by instillation of 500 mg of hydrocortisone diluted in 50 ml of saline. Culture of the peritoneal contents was negative. In both cases the symptoms were mostly related to foreign body reaction as the gauze was isolated and encapsulated within a thin membrane. Furthermore, neither patient needed any antibiotics after it was removed. These are the first two case reports for retained surgicel used during laparoscopic gynaecological surgery to be mistaken for dilated fallopian tubes. I suggest that all patients who had surgicel used during similar operations should have transvaginal ultrasound scan examination one month after the procedure, or even sooner if they remained symptomatic. Any tubular pelvic mass should be explored by diagnostic laparoscopy as it might be a retained surgicel gauze. Better still, a clinical preoperative test needs to be developed to check which patients might be at risk of developing such complications.

Keywords: Cellulose; Symptoms; Laparoscopy; Surgery

Introduction

Surgicel is oxidized regenerated cellulose which has been used for many years successfully to secure haemostasis and for adhesions prevention during surgery. It is a bio-absorbable fabric manufactured by Ethicon (Johnson and Johnson Medical Limited). It has been in clinical practice since 1947. Two to six weeks was the reported time for its complete dissolution and absorption depending on the site and quantity used [1]. However, recent reports documented some related complications after brain [2], spinal [3], thyroid [4], renal [5], gastrointestinal tract [6], tracheo-osophygeal [7] and cholecystectomy surgery [8], just as examples. This raises the question of how best to monitor patients who needed surgicel to guard against unwanted postoperative complications. It may even be a better idea and a practical task to develop a preoperative clinical test to establish which patients may be at risk of developing such complications.

Case Reports

In this manuscript, I will report on two patients who had surgicel removed 4 and 6 months after its application during laparoscopic surgery. Both patients had intermittent low-grade fever and intolerable dull pelvic pain for few months after surgery, which resolved after removing the surgicel.

Case 1

A 38-year-old patient, para 3+1, attended the clinic because of chronic pelvic pain and deep dyspareunia for many years. Blood tests showed normal white blood cells count and differential as well as normal erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) level. Moreover, high vaginal swab, endocervical swab and urine microscopy and culture were negative. Transvaginal ultrasound scan examination showed a normal uterus and left ovary. There was 5 cm endometriotic cyst in the right ovary and left side hydrosalpinx. Laparoscopic left salpingectomy and right ovarian cystectomy as well as excision of right-side pelvic wall endometriotic deposits were performed. One surgicel gauze was used to cover the raw area exposed on the right side. The procedure was covered with two antibiotics during and for 5 days after surgery. She had no major complaints when she attended the clinic one week later for her first postoperative visit. However, she reported dull aching pelvic pain and occasionally felt warm. Her temperature was normal on that day. She declined to use any postoperative medical treatment as she was intending to conceive soon. She also failed to keep a further appointment given to her one month later. Instead she presented 3 months later than scheduled with troublesome dull pelvic pain and painful defecation. She also reported intermittent episodes of low-grade fever for which she regularly took over the counter antipyretics.

Her temperature was 37.7°C and pulse rate was 90 beats/minute. A high vaginal swab for microscopy and culture, endocervical swab for chlamydia and CBC were unremarkable. Her ESR and CRP were slightly elevated. Transvaginal ultrasound scan examination showed a tubular structure with medium echogenicity on the right side of the pelvis. It was suspected to be a dilated right fallopian tube caused by distal tubal block sustained during the previous operation. Diagnostic laparoscopy showed a brown tubular structure encapsulated in a thin membrane and attached to the right pelvic sidewall tapering towards the midline (Figure 1). It was removed in pieces and the pelvis was very hyperaemic (Figures 2 and 3). It proved to be persistent surgicel which did not dissolve over the previous 4 months.

Following complete removal of surgicel fragments, the pelvis was

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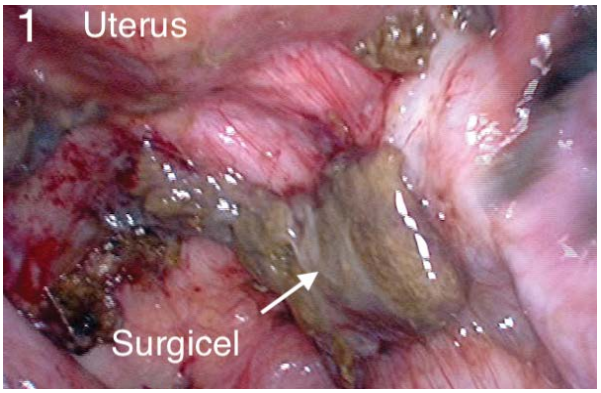

Figure 1: Shows surgicel encapsulated in a grey tubular structure stuck to the right pelvic sidewall and tapering into the pouch of Douglas.

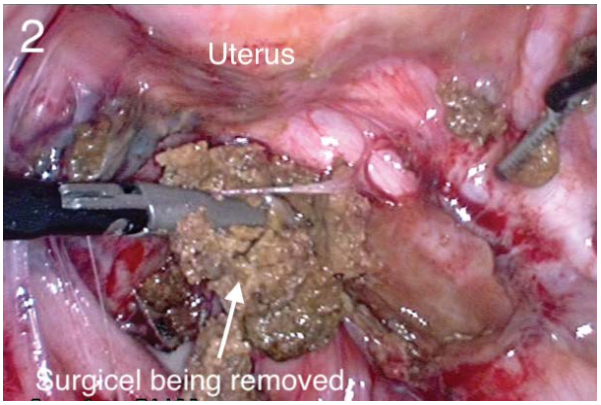

Figure 2: Shows part of the surgicel being removed as one coherent firm mass.

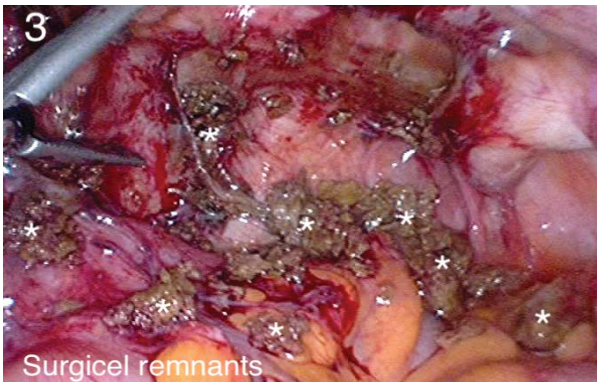

Figure 3: Shows remnants of surgicel in the pelvis before being completely removed. It also shows extensive areas of hyperaemia in the pelvis.

lavaged with 2 litres of warm normal saline. This was followed by instillation of 500 mg of hydrocortisone diluted in 50 ml saline into the pelvis. No antibiotics were given pending the results of the peritoneal fluid culture. The patient was discharged from hospital on the following day and was seen in the clinic after one week and one month thereafter. Culture of the peritoneal contents came back as negative. She had no complaints and her temperature was normal. She was discharged from the clinic with an open appointment if she needed any further help.

Case 2

A 32-year-old woman, para 2+0 attended the clinic because of severe pelvic pain, deep dyspareunia and progressive dysmenorrhoea for more than one year. She attended different clinics and was treated with different antibiotics with no response. Her urine microscopy and culture were normal. A high vaginal swab showed no abnormality and an endocervical swab for chlamydia was negative. She also had normal white blood cells count and differential, as well as normal ESR and CRP. Transvaginal ultrasound scan examination showed few foci of subendometrial adenomyosis and a very tender pelvis during examination. Otherwise there were no remarkable findings.

She had hysteroscopic excision of the subendometrial adenomyotic foci followed by diagnostic laparoscopy. There were no pelvic adhesions, but the surface of the uterus was covered with hyperaemic scar tissues (Figure 4). Both pelvic sidewalls showed endometriotic deposits, but more so on the left side. Bilateral transperineal fixation of the ovaries was done to expose the pelvic sidewalls and pouch of Douglas to facilitate surgery as shown in Figure 5. It also shows the surface of the uterus after peeling off the vascular scar tissue and use of minimal bipolar electrocoagulation. Bilateral peritonectomy was done before covering the top of the uterus with a surgicel sheet for haemostasis at the end of surgery (Figure 6). The procedure was

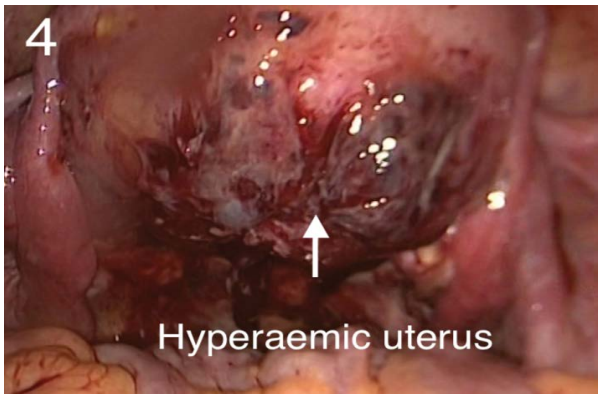

Figure 4: Shows the surface of the uterus with extensive hyperaemic scar tissues.

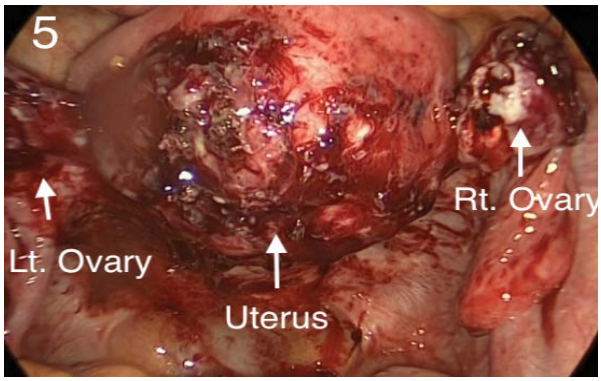

Figure 5: Shows the surface of the uterus after excision of the hyperaemic scar tissues and use of minimal bipolar electrocoagulation. The ovaries are seen hung transparietally to expose the pelvic side wall and the pouch of Douglas. This was done to make all instruments available for surgery rather than for ovarian and tubal retraction.

covered by two antibiotics during surgery and for 5 day thereafter. She was kept in hospital for two days as she had episodes of sharp pelvic pains and spikes of high temperature. She continued to have slight pelvic pain and her temperature was 37.6°C when she was seen in the clinic one week later. Clinical examination was unremarkable and high vaginal swab and urine tests were negative. She was started on monthly doses of Decapeptyl 3.75 mg injections (Triptorelin Acetate) for downregulation for 3 months to help with any residual endometriosis.

She continued to complain of dull pelvic pain and dyspareunia when she attended the clinic 3 months later. Transvaginal ultrasound scan examination was done after verbal consent. It showed a tubular structure in the pelvis which was diagnosed as a dilated right fallopian tube (Figure 7), thought to be consequent to pelvic adhesions following her first laparoscopy. Second look laparoscopy was done almost 6 months after the first surgery as she was not agreeable initially to have the procedure. It showed a well healed uterine surface, but a large tubular structure was seen in the pouch of Douglas encapsulated in a clear covering membrane (Figure 8). It proved to be surgicel gauze (Figure 9) during its removal from the pelvis with a retrieval bag. The pelvis looked hyperaemic and was lavaged with 2 litres of warm normal saline. Also 500 mg of hydrocortisone diluted in 50 ml saline were instilled into the pelvis. No antibiotics were given. She responded well and left the hospital on the following day. She had no symptoms when she attended the clinic one week after surgery and one month thereafter. Culture of the peritoneal contents was negative. She was discharged from the clinic with an open appointment.

Figure 6: Shows the fundus of the uterus covered with surgicel gauze for haemostasis and to prevent adhesions formation.

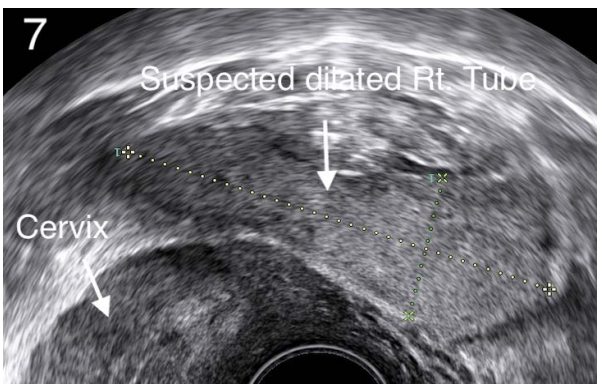

Figure 7: This is an ultrasound image showing part of the cervix with a tubular structure behind it. This was suspected to be a dilated right tube as the patient had left salpingectomy before.

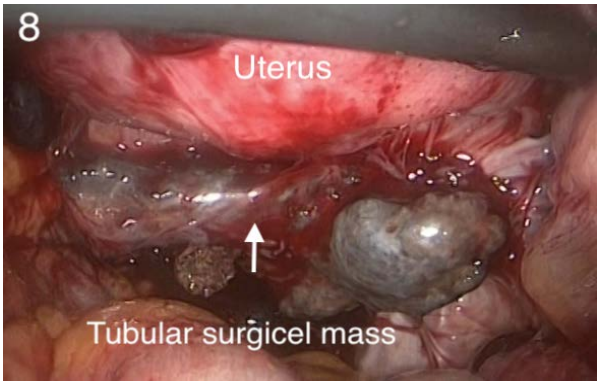

Figure 8: Shows a tubular mass encapsulated within a grey membrane lying behind the uterus across the pouch of Douglas. Notice the hyperaemia on the back of the uterus and surrounding the mass.

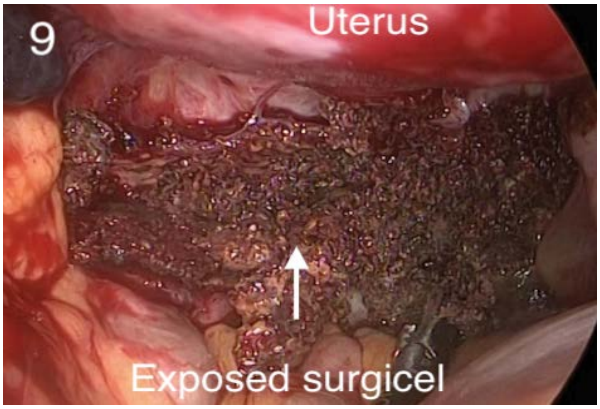

Figure 9: Shows exposed surgicel after excising the outer membrane of the tubular mass seen in Figure 8.

Discussion

In this manuscript I presented two patients who had troublesome dull pelvic pain and intermittent bouts of low-grade fever for few months following laparoscopic surgery. In both cases surgicel was used to prevent adhesions formation and to maintain haemostasis. Transvaginal ultrasound scan examinations showed tubular pelvic masses which were mistaken for dilated fallopian tubes. Yet again these were two further cases to add to the literature with persistent surgicel which created medical and diagnostic problems. Both patients felt well after its removal and had no further problems. In the immediate postoperative period surgicel may be mistaken for a haematoma or even an abscess creating a clinical diagnostic dilemma. Tam et al. [9] reported mistaking vaginal cuff surgicel for an abscess; an error which should be kept in mind when performing imaging studies in these patients. Recently, Piozzi et al. [10] published few recommendations for using oxidized regenerated cellulose to help with patients' management. These included removing the oxidized cellulose after haemostasis is secured which complied with the manufacturer's recommendation. This may not be a viable option especially if it was applied to a wide area, as secondary bleeding may occur after reducing the intrabdominal pressure following the release of CO_2 pneumoperitoneum.

Conclusion

These are the first two cases to be reported of mistaking retained

surgicel for dilated fallopian tubes during postoperative transvaginal ultrasound scan examinations. Accordingly, it may be a good idea to perform such an examination after one month or even sooner in all symptomatic patients who had surgicel during surgery. The presence of a tubular structure in the pelvis should raise the suspicion of persistent surgicel and the need for second look laparoscopy to remove it. At the same time as a preventive measure, the surgicel sheet may need to be trimmed to the smallest size adequate to secure haemostasis before its application. Isolation and encapsulation of surgicel in these two cases reflected a rejection phenomenon by the body to protect itself. Also, the surrounding inflammation may be due to biochemical or immunological reactions as the patients' condition improved after removing the gauze without using any antibiotics. Accordingly, sensitivity or similar tests may need to be developed to check beforehand which patient may be at risk of having such problems. These recommendations should be taken in conjunction with those made by Piozzi et al. [10], especially reporting surgicel use in the notes and informing the patients about its possible retention and side effects. Admittedly, problems related to surgicel, despite its extensive use, are not very common but this may be due to lack of reporting in the first place.

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