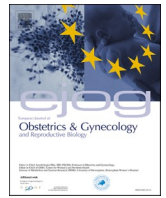




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Review article

Persistent ischiorectal fistula secondary to rectal extrusion of posterior vaginal mesh: Case report

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ABSTRACT

Introduction and hypothesis: Vaginal mesh has been used for years to try to improve the results of pelvic organ prolapse surgery, but current evidence does not confirm this improvement and instead describes serious and frequent adverse events.

Clinical case: 64-year-old patient with rectal extrusion of posterior vaginal mesh placed 8 years earlier, and persistent left ischiorectal fistula refractory to surgery.

She required 5 surgeries, carried out jointly between gynecology and general surgery, to solve, firstly, the bilateral perianal abscess secondary to extrusion of the posterior vaginal mesh into the rectum and then the persistent left ischiorectal fistula, despite the removal of the material prosthetic. Finally, the fistula was solved by injection of platelet-rich plasma.

Conclusions: Vaginal mesh complications often need a multidisciplinary approach, and treatment may require multiple approaches and more than one surgical procedure.

In the case of a persistent fistula refractory to surgery, after removing the mesh, non-invasive regenerative therapies that promote vascular growth and tissue regeneration could be considered such as platelet-rich plasma.

Introduction

Reconstructive surgery for pelvic organ prolapse (POP) is performed using native tissues. Vaginal meshes, although they have a lower rate of recurrence of POP, both anatomical and functional, compared to native tissues, have higher rates of reoperation and complications [1]. The average rate of complications of vaginal mesh is around 7–18 %, the most frequent being extrusion (5–11 %) and dyspareunia (2–3 %) [2]. More than 50 % of women with complications require surgery for their resolution [2].

Until 2009, the first case of ischioectovaginal fistula after posterior vaginal prolapse mesh was not described [3]. In 2008 [4], the United States Food and Drug Administration (FDA) warned about the possible serious complications associated with the use of transvaginal mesh as a treatment for POP.

Subsequently, in 2011 [5], it indicated that serious complications related to the use of transvaginal mesh to repair POP were not rare. Lastly, in 2016 [6], the FDA reclassified transvaginal meshes for POP, defining them as high-risk medical devices (class III).

Currently, the scientific evidence does not support the widespread use of permanent transvaginal mesh in the surgical treatment of POP [7].

The case that we present shows a patient with total vaginal mesh (anterior and posterior), who debuted 8 years after insertion with an abscess of the bilateral ischioectal fossa complicated by persistent left ischioectal fistula and refractory to surgical treatment, which was resolved after 5 surgeries and regenerative treatment by platelet-rich plasma (PRP) injection.

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Clinical case

64-year-old woman, with a history of 2 non-macrosome vaginal deliveries, presenting arterial hypertension and a body mass index of 27, not suffering from diabetes mellitus or smoking. At the age of 46, she underwent surgery for prolapse of the anterior and middle compartment pelvic organs with vaginal hysterectomy, anterior colporrhaphy, and McCall culdoplasty. At the age of 52, she consulted for vaginal vault prolapse, being treated surgically with total vaginal mesh (Prolift™).

Eight years after surgery with vaginal mesh, she went to the Emergency Department due to fever of 3 days of evolution, associated with continuous and dull pain located in the gluteal region, bilaterally, as well as swelling at said level of 1 month of evolution.

Laboratory tests show leukocytosis ($11.0 \times 10^9/L$) and elevated C reactive protein (155 mg/L). An abdominal-pelvic CT (computed tomography) was performed (Fig. 1) which visualized 2 transsphincteric fistulous tracts at 4 and 9o'clock in the anal canal that run through the ischiorectal and ischioanal fossae to the subcutaneous cell tissue of both gluteal regions and a 27 mm abscess, posterior to the vagina, in contact with the anterior wall of the anus.

After the diagnosis of a horseshoe-shaped perianal abscess due to mesh extrusion into the rectum, antibiotic therapy with intravenous amoxicillin-clavulanic acid was started and she was operated on by the general surgeons via the endoanal route by draining, cleaning and extracting removing the right side of the posterior mesh. The result of the microbiological culture was *Escherichia Coli* and *Bacteroides fragilis*.

After 45 days, she again presented painful swelling in the left buttock, without fever or drainage of purulent material from the anus or buttock, without signs of infection in the blood analysis, revealing by ultrasound a hyperrefringent image posterior to the vagina in contact with the anal sphincter, suggestive of prosthetic material (Fig. 2) and echo-negative collection in the thickness of the fatty tissue of the left gluteus (Fig. 3). The Magnetic Resonance (MRI) describes two transsphincteric fistulous tracts at 12–1o'clock, up to both ischiorectal fossae, more evident on the left side (Fig. 4). After a new cycle of intravenous antibiotic therapy for 10 days, a vaginal intervention was scheduled with the aim of removing the left part of the posterior vaginal mesh. A transgluteal microbiological culture of the collection was taken, with a

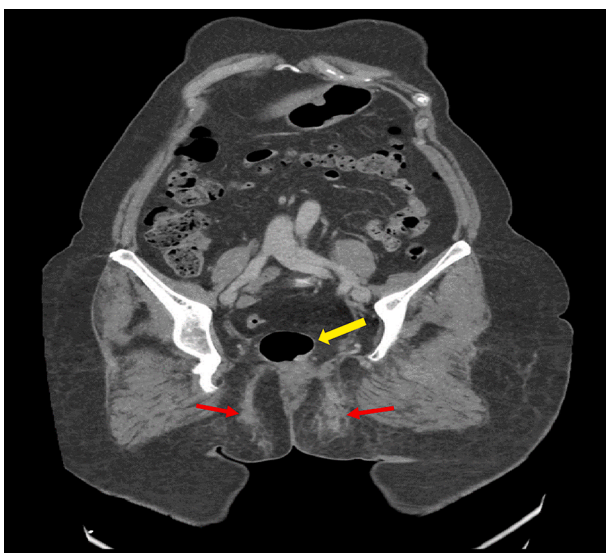


Fig. 1. Abdominal pelvic CT scan with 2 transsphincteric fistulous tracts (red arrows) reaching the bilateral gluteal region and a 27-mm abscess between the vagina and anal canal (yellow arrow). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

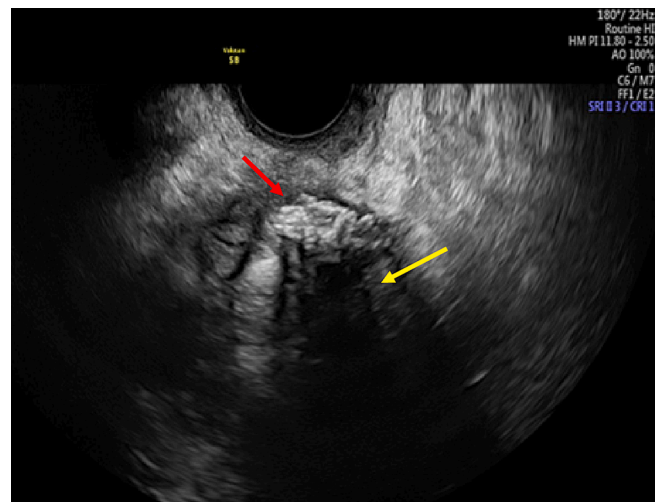


Fig. 2. 2D transperineal ultrasound: hyperrefringent image (red arrow) posterior to the vagina in contact with the anal sphincter (yellow arrow), suggestive mesh. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

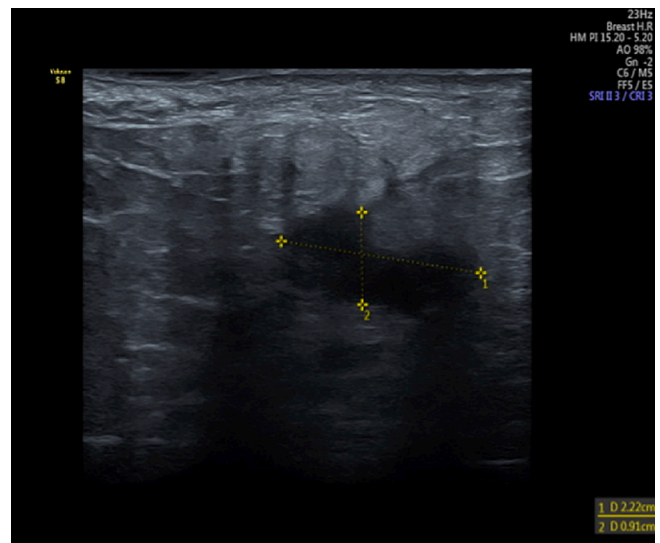


Fig. 3. 2D transgluteal ultrasound: echo-negative collection of 22 x 8 mm in the thickness of the left gluteal fat.

positive result for *Actinomyces Turicensis*, *Bacteroides Fragilis*.

Using a multidisciplinary approach, gynecologists and general surgeons performed a posterior colpotomy through the perineum, debridement between the vagina and anal canal and towards the left gluteal region, excision of fibrous tissue, interposition (flap) of the levator ani muscle and rectovaginal fascia. Through the abdomen, a loop colostomy bridge (protective colostomy on rod) was performed in the lower and left quadrant of the abdomen (Fig. 5), to prevent contamination of the area and facilitate healing. A left transgluteal drain is left for 4 days (Fig. 6). The anatomopathological result of the resected tissue does not reveal the existence of prosthetic material.

Two months later, the left gluteal abscess reappeared, which was drained in a medical consultation using a Penrose drain, prescribing oral antibiotic therapy for 10 days and *Finegoldia Magna* was isolated in the culture.

Transgluteal ultrasound and magnetic resonance imaging were performed. The first objectified the left fistulous tract (Fig. 7) and the second described both, the left side being more significant (Fig. 8). At 4

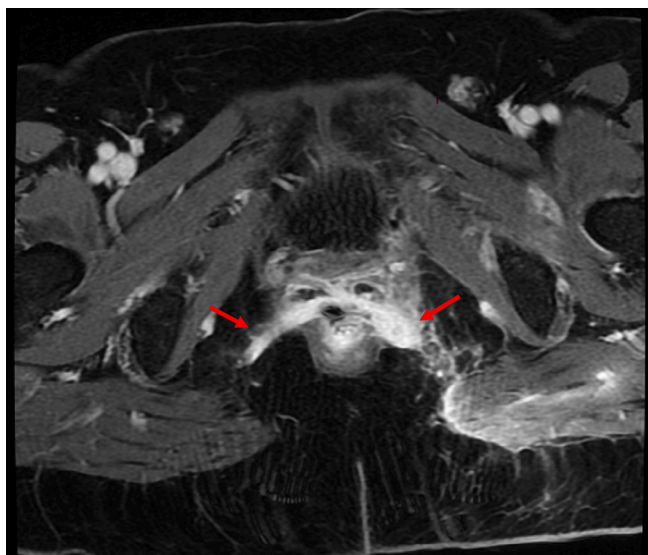


Fig. 4. Axial section MRI showing 2 transsphincteric fistulous tracts towards both ischioanal fossae (red arrows). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)



Fig. 5. Loop colostomy bridge in the lower and left quadrant of the abdomen.

months, a transgluteal resection of the fistulous tract from the left gluteus to the anal canal is performed jointly between gynecology and general surgery, guided by the placement of a pigtail by the radiology service, managing to resect the left part of the posterior vaginal mesh that was included in the fistulous tract (Figs. 9–11).

Subsequently, a 2 cm indurated area with a granulomatous appearance persisted in the left gluteal region, which coincides with the external orifice of the fistulous tract, which drains little seropurulent material on compression.

At this time, the MRI describes a 12 mm thick fistulous tract, originating at 12–1 h transsphincteric, which goes through the left ischioanal fossa to the left gluteal skin. After contrast administration, active inflammation was observed, with no visible collections or prosthetic material (Fig. 12).

13 months after the third surgery, a new surgery was performed, via the left transgluteal route. From the external fistulous orifice, a fistulectomy was performed up to the internal anal sphincter (Fig. 13), curettage of the fistulous tract and placement of a loose seton (Fig. 14), with the aim of reducing the extension of the persistent fistulous tract.

For 9 months, the patient continued with the seton, observing a decrease in the left external fistulous tract and the colostomy was

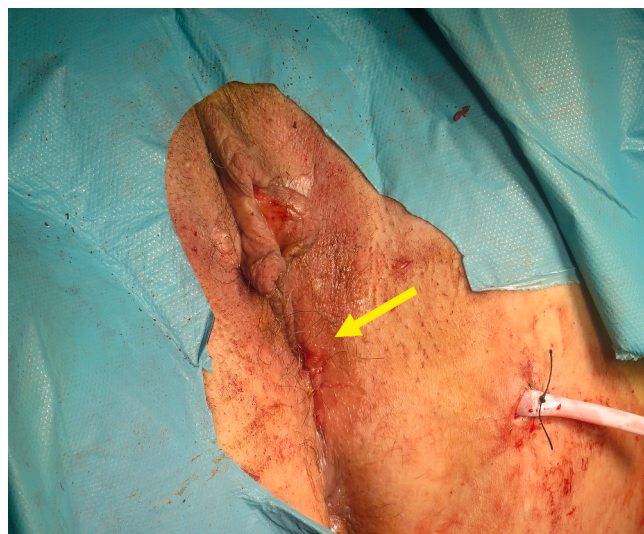


Fig. 6. Left transgluteal Penrose drain after resection of tissue between the vagina and anal canal, towards the left ischioanal fossa, via the perineum. The yellow arrow indicates the perineotomy. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

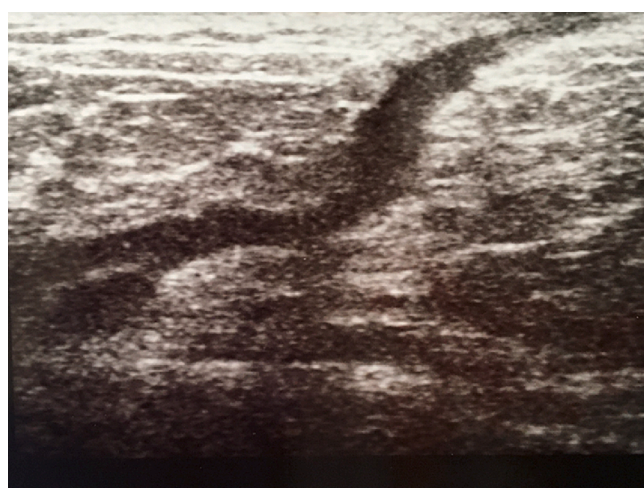


Fig. 7. 2D transgluteal ultrasound: fistulous tract in the left gluteal fatty tissue.

normally functioning. A new MRI was performed showing the persistence of the left fistulous tract with the seton inside, which runs through the ischioanal fossa until it flows into the skin plane of the left gluteus and which enhances after contrast administration, suggesting activity (Fig. 15).

Twenty-seven months after her first admission to the Emergency Department, a less invasive treatment was proposed using an autologous platelet-rich bioactive matrix to promote vascular growth and tissue regeneration. We proceeded, via the left transgluteal route, to curettage the fistulous tract, supervised by the seton (Fig. 16), wash the tract with saline solution (Fig. 17), cool the 2 fistulous orifices and inject the autologous PRP into the fistulous tract and around it (Fig. 18). The internal fistulous orifice was closed and a fistulectomy of the most external tract was performed (Fig. 19), which had healed only on the surface.

The evolution was very favorable (Fig. 20), with correct healing of the 2 wounds located in the left buttock, being asymptomatic at 6 months, so the colostomy was reversed. After this, the patient continues without gluteal swelling or pelvic pain, with anal continence and does not report dyspareunia after resuming sexual relations, interrupted

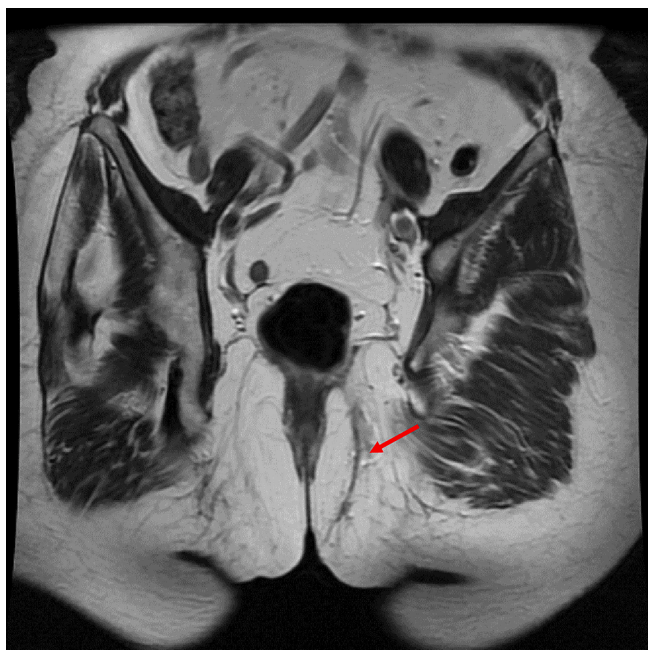


Fig. 8. Axial section MRI showing 2 fistulous tracts with transsphincteric origin at 12–1 h and towards both ischioanal and ischioanal fossae, the left one being more evident (red arrow). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

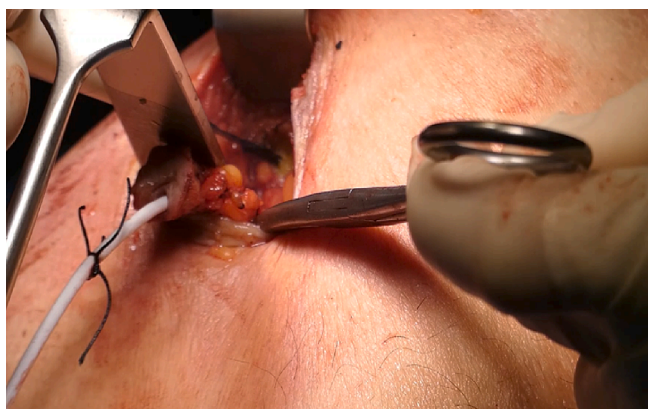


Fig. 9. Exeresis of the left transgluteal fistulous tract towards the anal canal, guided by pigtail.

during all this time.

Discussion

The mesh placed in this patient was indicated due to recurrence of the prolapse, a situation that could currently justify the indication and use of vaginal mesh in the hands of expert surgeons, especially in Europe where its use is more widespread than in the United States.

The case shows the multiple (5) surgeries performed jointly between gynecology, general surgery and radiology, which collaborated by placing the pigtail to guide the fistulous tract.

Different approaches (endoanal, vaginal, transgluteal, and abdominal) were used to initially resolve the bilateral perianal abscess and remove the right part of the vaginal mesh, isolate the area of fecaloid contamination, remove the left part of the posterior vaginal mesh, and repair complex and persistent left ischioanal fistula, even in the absence of prosthetic material.

Finally, a less invasive approach was chosen, with a regenerative

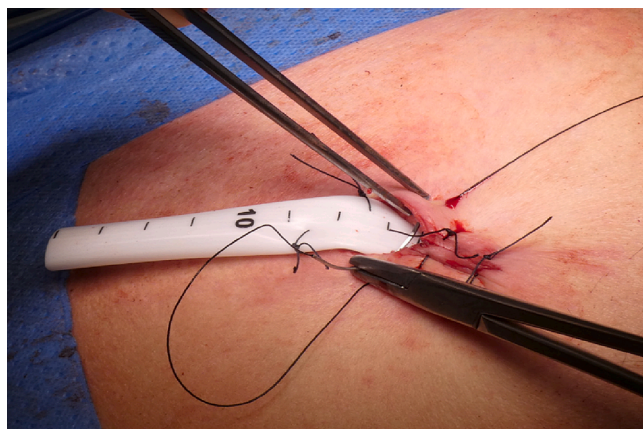


Fig. 10. Penrose drain placement after exeresis of the transgluteal fistulous tract.



Fig. 11. Excised fistulous tract containing the left part of the posterior mesh (yellow arrow). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

objective, resorting to the PRP injection in the fistulous tract.

Given the complications of extrusion to the rectum, infection or sepsis as a result of vaginal prosthetic material, it would be recommended to perform a bowel diversion, temporary if possible, to avoid the passage of fecaloid material through the area involved.

Vaginal mesh has been used to facilitate POP repair despite the lack of strong evidence to support its use [8]. In October 2008, the FDA reported possible adverse effects of vaginal mesh such as extrusion, pain, infection, urinary problems, organ perforation, POP recurrence, vaginal leukorrhea, and fistula [4]. The average rate of complications of vaginal mesh is around 7–18 % [2] and there are several approaches for managing complications.

The removal of the vaginal mesh can be local or more extensive, and if there is visceral perforation or fistula, treatment may require several approaches and more than one surgical procedure. Different surgical approaches are considered to treat a rectus vaginal fistula (RVF) depending on its size, location, etiology, the state of the surrounding tissue, infection, and prior repair attempts. For small (<2 cm), non-recurrent, low-type RVF without significant infection, transvaginal, transrectal, or transperitoneal closure is preferable due to its low invasiveness. Transabdominal repair with or without bowel diversion is mainly used when the RVF is large, high-type, recurrent, or complex (accompanied by infection, caused by inflammatory bowel disease, malignancy, or radiotherapy).

Additionally, the Martius flap procedure and the Gracilis muscle interposition are used in difficult or recurrent cases [9].

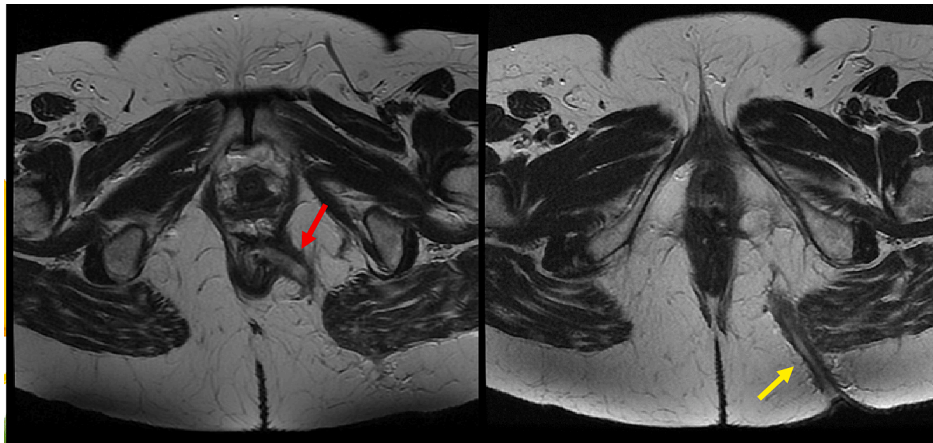


Fig. 12. Axial section MRI showing a 12-mm fistulous path, originating at 12–1 h transsphincteric (red arrow), toward the left ischioanal fossa that reaches the gluteal skin, with active inflammation, with no visible collections or prosthetic material (yellow arrow). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

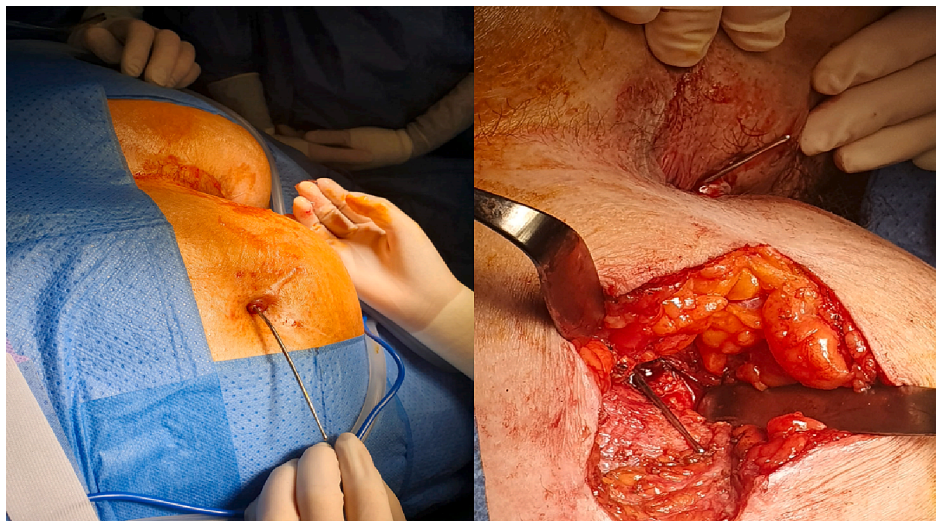


Fig. 13. Location of the fistulous path from the external orifice to the left gluteal level, to the internal fistulous orifice in the anal canal.

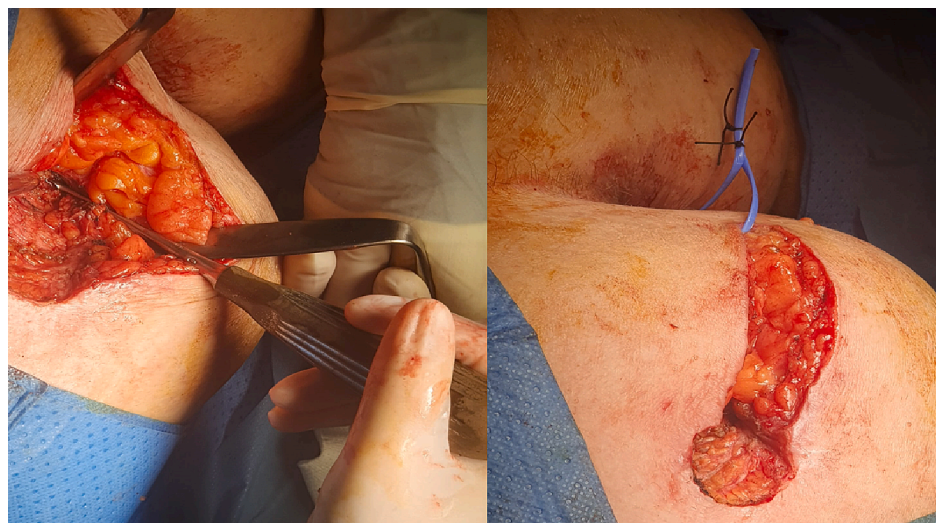


Fig. 14. Curettage of the fistulous tract and placement of a loose seton to try to reduce the extension of the fistula.

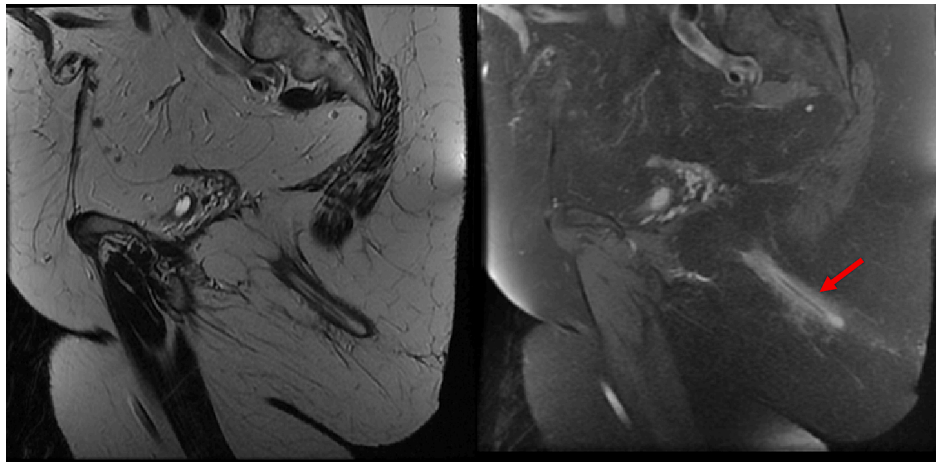


Fig. 15. Coronal section MRI showing the persistence of the left fistulous tract with seton inside, which runs through the ischioanal fossa to the left gluteal skin plane and which enhances after contrast administration, suggesting activity (red arrow). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

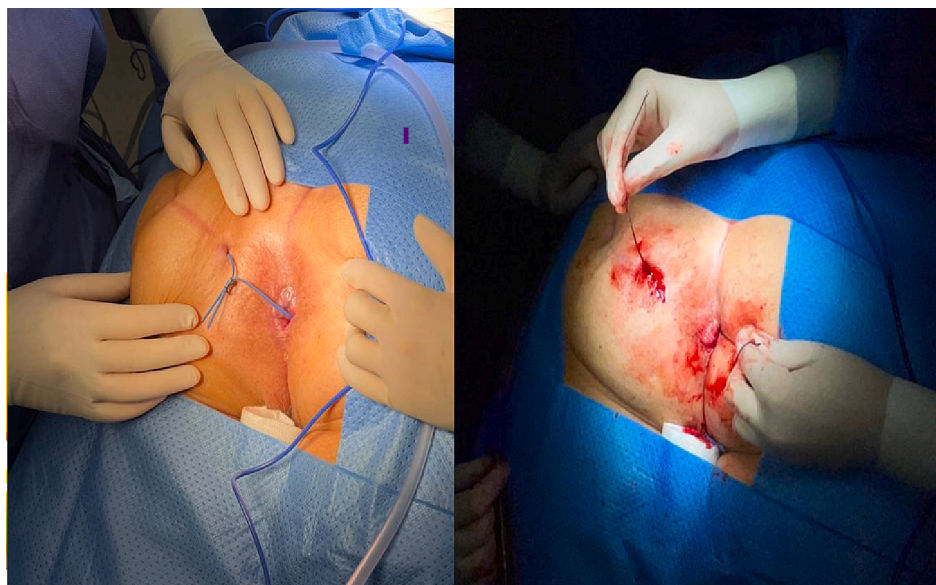


Fig. 16. Fistulous tract isolated by a loose seton and curettage of the fistulous tract.

This type of management of RVF can be assumed for the treatment of our case of ischioanal fistula since in both types of fistula the area involved contains fecaloid material.

The first reported case of ischioanal fistula and abscess dates from 2009, it was diagnosed 30 months after the insertion of the posterior vaginal mesh and was resolved with 2 vaginal surgeries [3].

In a series of 5 rectovaginal fistulas after posterior vaginal mesh, the treatment was multidisciplinary with a mean of 2 surgeries [10].

Repeated surgeries can generate muscle and nerve damage in the area, affect the anal transition area, create acontractile fibrosis, and in case of infection or sepsis, systemic antibiotic therapy and intestinal diversion would be recommended to avoid the passage of fecaloid material through the area implicated [8].

The first published case of recurrent perianal fistula repair treated with PRP concentrate was published in 2020 [11], which led us to assess the possibility of using this type of regenerative therapy to resolve our patient's complex and recurrent left ischioanal fistula.

PRP is an example of a new therapeutic approach for an expanding list of medical conditions. In this therapy, growth factors (GFs), released from platelets α -granules, accelerate stages of healing processes and

bring about tissue necrosis resolution, chemotaxis, cell regeneration, cell proliferation and migration, extracellular matrix synthesis, remodeling, angiogenesis, and epithelialization. PRP contains a high level of adhesion proteins, like fibrin, fibronectin, and vitronectin, that are the components of the extracellular matrix and play an important role in wound healing. Moreover, GFs stimulate neovascularization in healing sites by increasing the amount of nutrients needed for the attracted stem cells regenerating the damaged tissues [12].

There are contraindications for PRP such as coagulation disorders, breastfeeding, pregnancy, cancer diagnosis, active infections and situations with chronic prescription of nonsteroidal anti-inflammatory drugs [13].

A prospective study carried out with 16 patients with recurrent vesicovaginal fistula proposed treatment with PRP injection and subsequent surgical closure of the fistula at 6–8 weeks. Of these, 1 patient was cured solely with the injection of PRP without requiring surgery and in the rest the fistulous tract resolved after the combination of PRP and surgical treatment [12].

A 2023 systematic review including 514 patients with complex and recurrent anal fistula reported an overall cure rate of 72 %; while the



Fig. 17. Lavage of the fistulous tract with saline solution after curettage.

cure rate with PRP injection was 62 %, with the combination of PRP and other treatments it was 83 %. Therefore, PRP shows favorable efficacy in the treatment of refractory anal fistula, especially in combination with other procedures [14].

Likewise, a prospective study of 10 patients with complex and refractory anal fistula, treated with PRP and followed for 10–84 months, found that combined treatment with PRP favored the cure rate of this type of fistulas, since 6 patients were cured with PRP injection and 4 required, in addition to PRP, subsequent surgery [15].

Conclusions

The report of this patient's challenging process could be useful in similar complex cases of vaginal mesh complications, to try to limit the number of surgical procedures, evaluating therapies that favor vascular growth and tissue regeneration such as PRP, and always considering a multidisciplinary approach between gynecologists, urologists, coloproctologists, radiologists....

This collaboration is essential in the case of extrusion into the rectum with infection or sepsis, a bowel diversion being recommended to

prevent the passage of fecaloid material through the area involved.

However, due to the scarcity of scientific publications in this regard in gynecology, only the future experience acquired will be able to confirm its usefulness and will allow a correct selection of patients who are candidates for this regenerative therapy, such as its application in fistulas refractory to treatment.

Summary

Vaginal mesh as a treatment for pelvic organ prolapse has been associated with serious and persistent complications, so its use is currently restricted to certain highly individualized cases. These complications represent a significant diagnostic and therapeutic challenge that requires a multidisciplinary approach and many times reoperations.

In the event of mesh extrusion into the rectum resulting in infection or sepsis, a bowel diversion would be recommended to prevent the passage of fecaloid material through the affected area.

Despite the removal of the posterior vaginal mesh, an ischioanal fistula persisted.

Since the management of persistent fistulas is complicated, the novel regenerative therapy with PRP could play an important role in its resolution, so we want to disseminate the process of this patient in the field of urogynecology.

Author guarantor

Sonia de Miguel Manso accepts full responsibility for the work and/or conducting the study, had access to the data and controlled the decision to publish.

Consent to publish

Written informed consent was obtained from the patient for publication and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Ethical/institutional review board approval

His work did not require Institutional/Ethical Review Board approval because no therapy not approved by the European Medicines Agency (EMA) was used. In addition, the surgeries were performed by surgeons specialized in pelvic floor and proctology, who did not practice any new technique on the patient, so authorization by the hospital ethics commission was not required, since care was regulated according to the lex artis of professionals. involved.

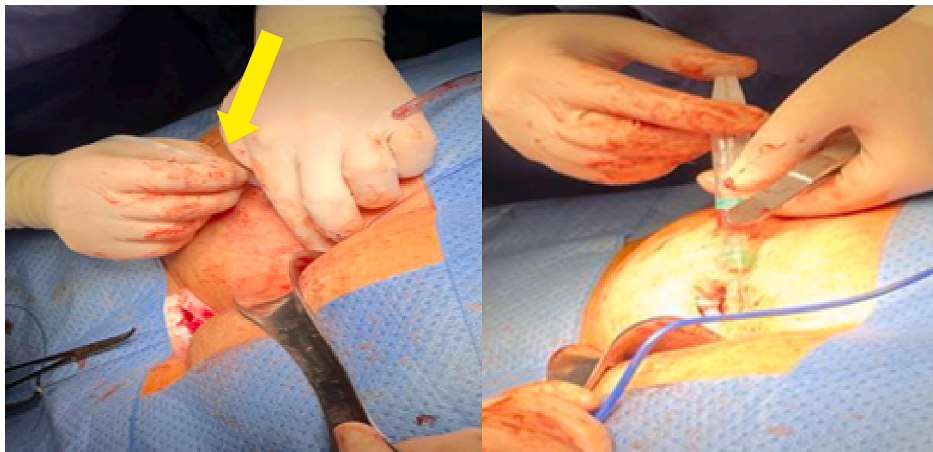


Fig. 18. Injection of autologous platelet-rich bioactive matrix into the fistulous tract via cannula (yellow arrow) and around it via syringe and needle. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

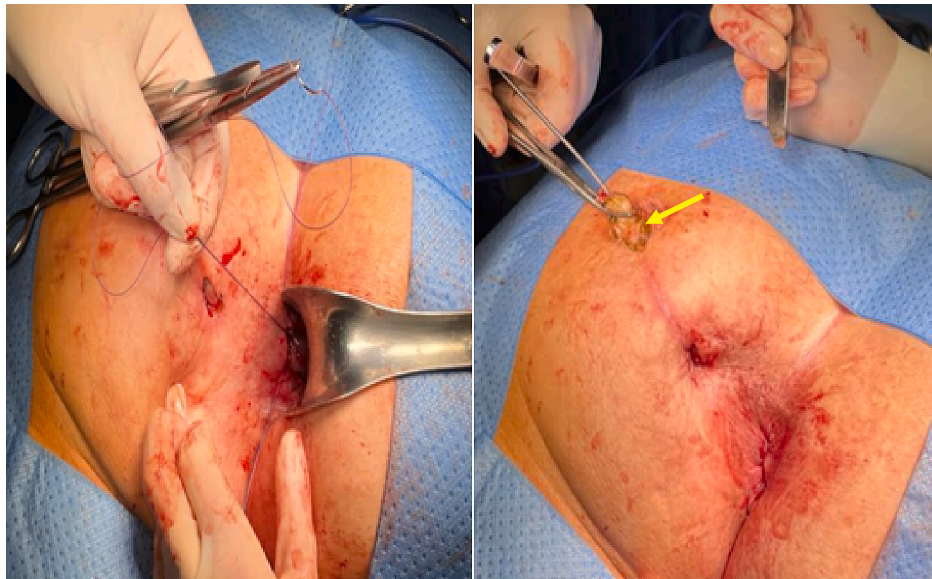


Fig. 19. Closure of the internal fistulous orifice in the anal canal and excision of the residual fistulous tract, lateral to the external fistulous orifice (yellow arrow). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)



Fig. 20. Healing of the external fistulous orifices in the left gluteus one week and 2 months after the injection of regenerative matrix.

CRediT authorship contribution statement

Sonia De-Miguel-Manso: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Supervision, Writing – original draft, Writing – review & editing. **Beatriz De-Andres-Asenjo:** Conceptualization, Data curation, Methodology. **Julio Gobernado-Tejedor:** Data curation, Resources, Software. **Elena García-García:** Data curation, Writing – review & editing. **Andrea Vazquez-Fernandez:** Data curation, Investigation, Methodology. **Cristina Alvarez-Colomo:** Data curation, Methodology.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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