CASE REPORT

Diagnosis and management of uterocutaneous fistula following cesarean section: A case report

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Abstract

Uterocutaneous fistula following cesarean delivery is an exceptionally rare complication, defined by an abnormal tract between the uterine cavity and the abdominal scar. We report a 28-year-old woman who presented three months and half after a cesarean section with cyclical bloody discharge from a Pfannenstiel scar, preceded by a superficial wound infection. Pelvic magnetic resonance imaging (MRI) precisely delineated the tract, revealing a 21 mm anterior uterine wall defect communicating with a 25 mm subcutaneous collection, and informed surgical planning. Management included complete fistulectomy with layered uterine repair, followed by a three month course of a gonadotropin-releasing hormone (GnRH) analogue. Postoperative recovery was uneventful, with no recurrence during follow-up. This case highlights an infection-associated delayed presentation and illustrates the value of quantitative MRI mapping combined with short-course hormonal suppression to achieve durable closure while preserving fertility. *(Afr J Reprod Health 2026; 30 [8]: 140-146).*

Keywords: Cutaneous fistula, cesarean section, postoperative complication, uterus, magnetic resonance imaging

Résumé

La fistule utéro-cutanée après césarienne est une complication exceptionnellement rare, définie par un trajet anormal reliant la cavité utérine à la cicatrice abdominale. Nous rapportons le cas d'une femme de 28 ans présentant, 3,5 mois après une césarienne, un écoulement sanguinolent cyclique au niveau d'une cicatrice de Pfannenstiel, précédé d'une infection superficielle de la plaie. L'IRM pelvienne a montré un défect antérieur de la paroi utérine de 21 mm communiquant avec une collection sous-cutanée de 25 mm, et a guidé la planification opératoire. La prise en charge a consisté en une fistulectomie complète avec réparation utérine en plusieurs plans, suivie d'un traitement par analogue de la GnRH pendant 3 mois. Les suites ont été simples, sans récidive au suivi. Ce cas illustre une présentation retardée associée à l'infection et l'intérêt de la cartographie IRM quantitative associée à une suppression hormonale courte pour une fermeture durable en préservant la fertilité. *(Afr J Reprod Health 2026; 30 [8]: 140-146).*

Mots-clés: Fistule cutanée, césarienne, complication postopératoire, utérus, imagerie par résonance magnétique

Introduction

A uterocutaneous fistula represents an uncommon yet clinically relevant sequela of cesarean delivery, whereby a fistulous tract creates a pathological communication between the endometrial cavity and the cutaneous surface, typically at the incision site.[1] Since its initial description, published case series and reviews has enhanced clinical recognition by clarifying pathophysiologic hypotheses, predisposing factors, and diagnostic challenges.[2,3] Clinical presentation is heterogeneous and may lead to delayed diagnosis and suboptimal management. Reported risk factors include surgical site infection, inadequate uterine closure, and prior or repeated uterine surgery. Diagnosis is primarily established by imaging, with MRI and fistulography facilitating tract mapping and management decisions.[4] Surgical treatment remains the principal therapeutic approach, though technique selection may vary based on fistula characteristics and clinical context.[4,5]

This report adds to the limited literature on this rare entity by providing detailed case

documentation and a focused review of current diagnostic and management strategies.

Case report

A 28-year-old multiparous woman (gravida 3, para 3) with no significant medical or surgical history underwent an emergency cesarean delivery for a previously scarred uterus. Intraoperatively, dense adhesions to the symphysis pubis were observed. The immediate postoperative outcomes were uncomplicated.

In the weeks following surgery, the patient developed a superficial surgical-site infection, managed conservatively on an outpatient basis with local wound care and regular dressing changes. Three and a half months later, she represented with cyclical bloody discharge from the Pfannenstiel scar, coinciding with menstruation. On examination, she was in good general condition. The incision appeared well healed overall; however, a 1 cm midline cutaneous dehiscence was noted, without purulent drainage.

Pelvic magnetic resonance imaging (MRI) demonstrated an 11 × 6 × 4 cm uterus with a 21 mm defect in the anterior uterine wall communicating with a 25 mm subcutaneous parietal collection. The tract was hypointense on T1 weighted images, mildly hyperintense on T2 weighted images, and showed avid post-gadolinium enhancement, findings consistent with an active uterocutaneous fistula (Figures 1 and 2).

The patient underwent exploratory laparotomy under spinal anesthesia. Intraoperative injection of methylene blue facilitated precise identification of the uteroparietal fistulous tract (Figure 3). Dense utero-parietal adhesions were meticulously lysed, and the tract was dissected along its entire course and completely excised (Figure 4). The uterine defect was debrided and repaired in layers using interrupted X-shaped sutures with absorbable Vicryl 1. Hemostasis was secured, and the peritoneal cavity was copiously irrigated with saline (Figure 5).

Postoperatively, the patient received a 14 day course of empirical antibiotics and iron supplementation. Adjuvant gonadotropin-releasing hormone (GnRH) analogue therapy was initiated to induce therapeutic amenorrhea for three months and promote healing.

Recovery was uneventful, with complete symptom resolution and no evidence of recurrence. Follow-up imaging confirmed successful repair, demonstrating complete tract closure and absence of residual collection.

Discussion

Uterocutaneous fistula after cesarean section is rare and often underrecognized. Its true incidence remains unclear,[2,4] and presentation is frequently delayed, with symptoms emerging weeks to months after surgery, most commonly within 2 to 6 months.[1,2] In our patient, manifestations occurred three months and half postoperatively, which is consistent with published reports.The cardinal clinical manifestation is catamenial bleeding from the surgical scar, indicating a patent tract between the uterine cavity and the skin. Despite its high diagnostic specificity, this symptom is often underestimated or misinterpreted, leading to diagnostic delay.[5]

Additional manifestations may include inflammatory scar changes (swelling/induration), pelvic pain, and purulent drainage in cases complicated by superinfection.[6–8] The history of postoperative parietal infection in our case supports an infection-related contribution to fistulogenesis.
The development of a uterocutaneous fistula is thought to result from a combination of uterine scar disruption and abnormal tissue repair, often perpetuated by infection and chronic inflammation, leading to a persistent tract between the uterine cavity and the skin. Risk factors include cesarean scar dehiscence, use of non-absorbable sutures, inadequate drainage of postoperative hematomas, and repeated uterine surgery.[4–6] Postoperative infection is frequently implicated, ontributing to necrosis and fibrosis, facilitating fistulization.[7,8]

On physical examination, a cutaneous opening at the scar may be identified, often without purulent discharge,[3,4] as observed in our patient. The differential diagnosis includes postoperative sinus tracts, suture granulomas, and, more rarely, neoplastic lesions.[8] Imaging is central to both confirming the diagnosis and guiding operative

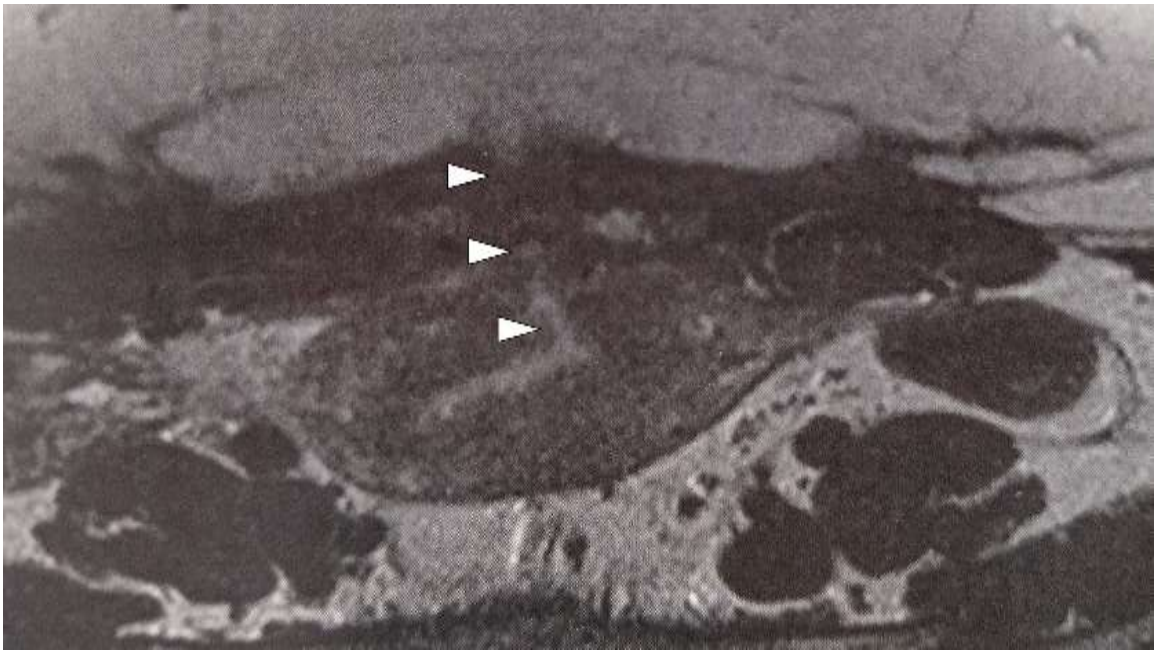

Figure 1 : Pelvic MRI : Axial T2-weighted shows a tubular, T2-hyperintense fistulous tract (arrowheads) arising from the anterior uterine wall/cesarean scar region and coursing anteriorly through the preperitoneal and abdominal wall soft tissues toward the skin, consistent with a uterocutaneous fistula.

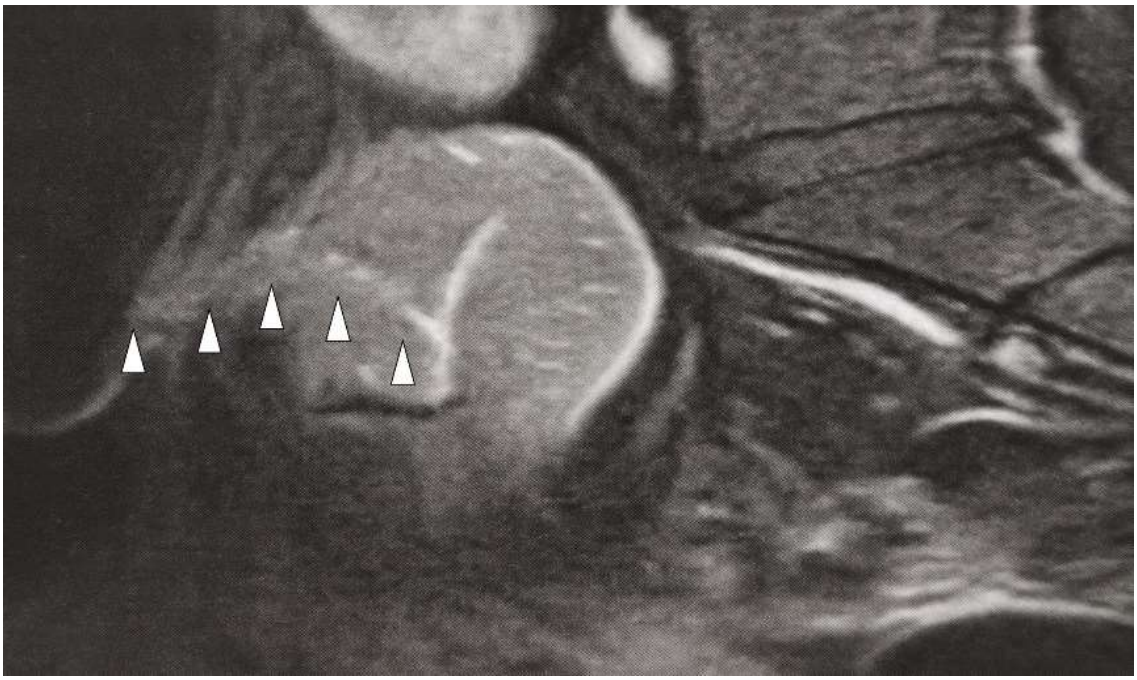

Figure 2 : Pelvic MRI : Sagittal T2-weighted demonstrates a linear, fluid-signal (T2-hyperintense) fistulous tract (arrowheads) originating from the anterior lower uterine segment at the cesarean-scar region and extending anteriorly through the uterovesical/anterior peritoneal interface and preperitoneal soft tissues toward the anterior abdominal wall, consistent with a uterocutaneous fistula.

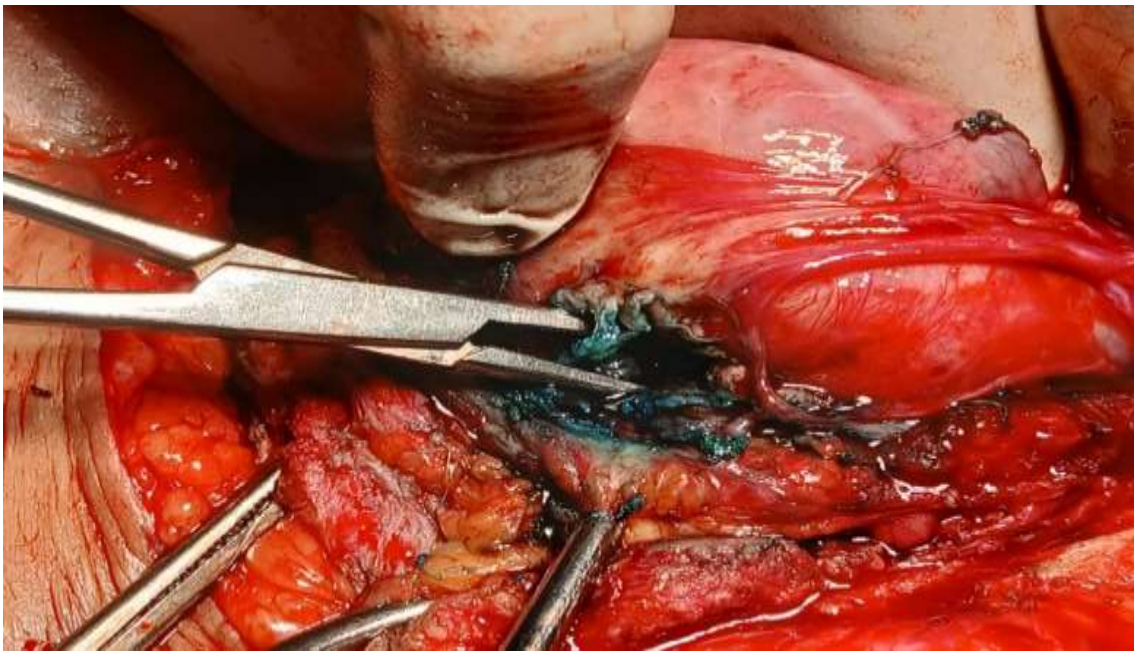

Figure 3 : Intraoperative photograph demonstrating direct visualization of the uteroparietal fistulous tract. Following transcervical intrauterine methylene blue instillation, blue dye is seen extravasating through the anterior uterine wall at the cesarean-scar region and tracking along the dissected tract toward the abdominal wall, thereby confirming uterocutaneous communication and facilitating complete excision.

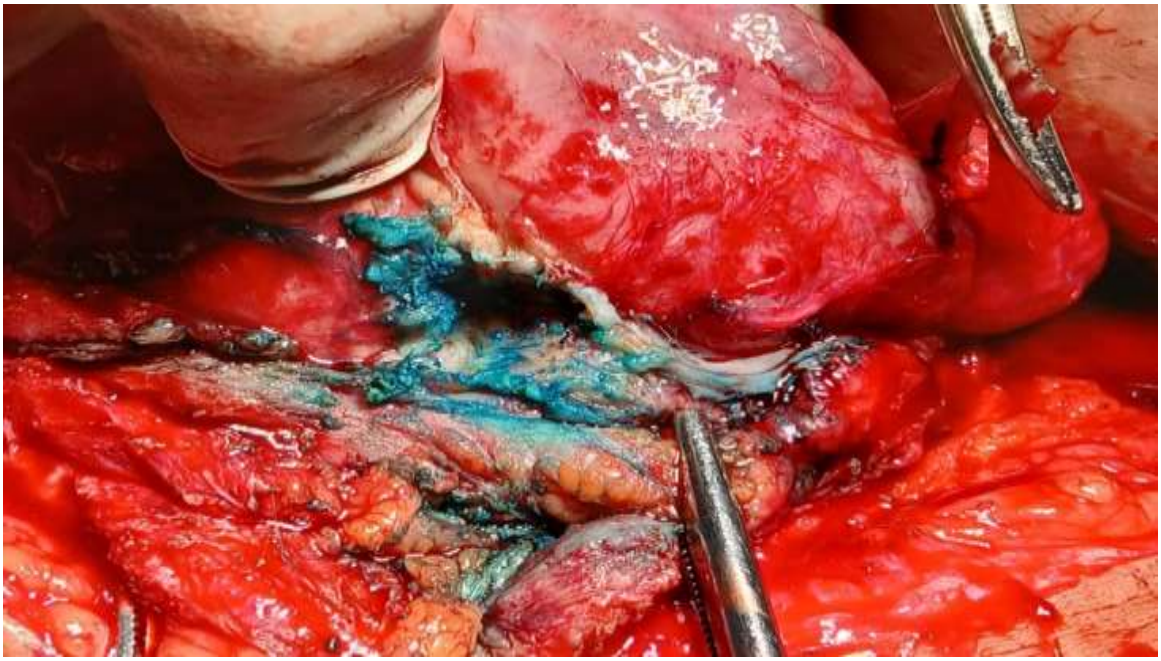

Figure 4. Intraoperative photograph after methylene blue instillation showing diffuse blue dye extravasation along the uteroparietal fistulous pathway. The staining sharply delineates the tract margins and surrounding inflamed fibrotic tissues, confirming the direction of communication from the anterior uterine wall (cesarean-scar region) toward the abdominal wall and enabling complete tract dissection prior to excision.

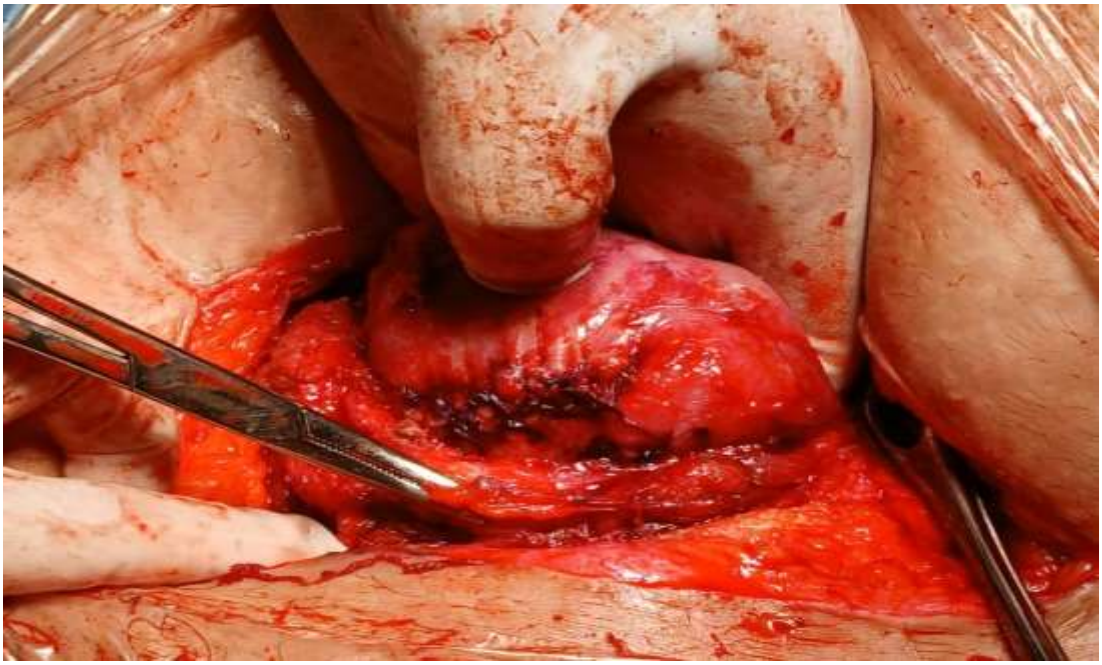

Figure 5 : Intraoperative photograph after complete fistulectomy, showing the refreshed margins of the anterior uterine wall and definitive repair of the uterine defect. The hysterorrhaphy is performed in layered, tension-free fashion with interrupted sutures, restoring uterine wall integrity and obliterating the uterocutaneous communication prior to final irrigation and closure

strategy. While pelvic ultrasound is widely available as a first-line test, its ability to characterize complex fistulous anatomy is limited, particularly in the presence of adhesions or associated collections.[9]

MRI is therefore considered the modality of choice because of its excellent soft-tissue contrast, high spatial resolution, and multiplanar capability, allowing accurate assessment of the tract and its relationships to the uterus and abdominal wall.

Typically, the fistulous tract is low signal on T1-weighted images and may appear hyperintense on T2-weighted sequences when fluid-filled or inflamed. Post-gadolinium enhancement helps identify active inflammatory changes and improves delineation of the tract. Beyond diagnosis, MRI provides key measurements (course, length, and exact location), which facilitate surgical planning and risk assessment. In our patient, MRI demonstrated a 21 mm anterior uterine wall defect communicating with a 25 mm parietal collection, supporting the indication for definitive surgical repair.[9]

The therapeutic objective is complete excision of the fistulous tract with definitive closure of the uterine defect. Surgical repair can be performed via laparotomy, laparoscopy, and, in selected centers, robot-assisted approaches.[9,10] When feasible, minimally invasive techniques have been reported with favorable outcomes, offering reduced postoperative pain, shorter hospital stay, and lower morbidity.[10] Although comparative data are limited, absorbable sutures (e.g., Vicryl 1 or 2) are commonly preferred, providing adequate tensile strength while limiting foreign-body reaction. Interrupted X-shaped stitches can improve edge apposition and distribute tension more evenly, which may enhance healing. Regardless of the approach, meticulous debridement and a watertight multilayer uterine closure are key steps to minimize the risk of persistence or recurrence.[9]

Intraoperative injection of methylene blue is a useful adjunct to delineate the fistulous pathway, confirm uterine communication, and verify complete excision, thereby potentially reducing recurrence. This approach was applied in our patient with a favorable outcome.

Gonadotropin-releasing hormone (GnRH) analogues have been reported as adjuvant therapy and, more rarely, as a conservative option in selected cases.[9,11] By inducing temporary hypoestrogenism and amenorrhea, they decrease endometrial activity and menstrual flow, which may facilitate tract closure and optimize postoperative healing.[11] When used in combination with definitive surgery, as in our case, short-course hormonal suppression may further reduce the risk of recurrence; however, it should not be considered a substitute for surgical repair in complete, complex, or infected fistulas.

Potential complications include persistence or recurrence, secondary infection, and uterine scarring with possible implications for future fertility.[9] Postoperative management should include careful wound surveillance, correction of anemia when present, and imaging confirmation of tract closure. Close follow-up is essential for early detection of recurrence.

Preventive measures focus on meticulous surgical technique, effective infection control, adequate drainage of postoperative collections, and avoidance of unnecessary repeat cesarean deliveries. Further prospective data are needed to standardize management strategies.

Recommandation

This case reinforces that uterocutaneous fistula, although exceptionally rare, should be systematically considered in any post-cesarean patient presenting with catamenial bleeding from the operative scar, particularly when preceded by a surgical-site infection. The originality of this case lies in the infection, associated delayed presentation and in the demonstration that quantitative MRI mapping can provide actionable information for operative planning and risk assessment.

From a practical standpoint, we recommend:

1.early referral to a multidisciplinary team (obstetrics/gynecology, radiology, and, when needed, surgery);

2.pelvic MRI as the preferred imaging modality to delineate the tract, measure the defect, and identify associated collections;

3.complete fistulectomy with meticulous multilayer uterine repair as the definitive treatment when a true uterine communication is confirmed;

4.and consideration of short-course GnRH analogue therapy after surgery to induce temporary amenorrhea and support durable healing, especially in inflammatory or complex cases.

Structured follow-up with clinical assessment and imaging confirmation is advised to detect early recurrence and to counsel patients regarding fertility planning.

Conclusion

Uterocutaneous fistula after cesarean section remains an uncommon but challenging condition. Accurate diagnosis, primarily through MRI, is crucial for effective surgical planning. Complete excision of the fistulous tract with careful uterine repair, supplemented by medical treatment such as GnRH analogues, leads to successful outcomes and prevents recurrence. Awareness of this rare entity, prompt recognition of clinical signs, and multidisciplinary management are essential to optimize patient care and preserve future fertility.

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Authors' contributions

Jawaher Hammadi, Soukeina Jaballah, Yasmine Ben Ali, Jihene Bel Haj, Nour Rouis, Samar Knaz, Sana Ghades and Mohamed Ridha Fatnassi : conceived and designed the study, collected and analysed the data, and prepared the manuscript.

All authors read and approved the final manuscript.

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