

Silent Intruders: Recurrent Suture Granuloma Unveiled in Caesarean Scar

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Abstract

Objective: To describe the clinical and radio-pathological features of suture granuloma, an inflammatory response to retained suture material that primarily affects non-absorbable sutures.

Case report: We report a case of a 26-year-old female presenting with painful swelling at a caesarean section scar, previously excised for similar complaints. Physical examination revealed a solid soft tissue mass on the scar. Magnetic resonance imaging (MRI) identified a 2x2 cm lesion in the right abdominal wall, suggestive of suture granuloma. Surgical excision revealed prolene suture material within the granulomatous tissue. Histopathology confirmed foreign body reaction.

Conclusion: Recurrence post-prior excision underscores the importance of complete granuloma removal. Differential diagnoses included scar endometriosis and inflammatory lesions. Suture granulomas, though rare, require consideration in scar-related swelling. Collaboration between specialties ensures accurate diagnosis and management.

Keywords: Silent Intruders; Recurrence; Granuloma; Caesarean Scar

Introduction

Suture granuloma, a localized inflammatory reaction to retained suture material, is a rare complication predominantly associated with non-absorbable sutures (1). Although infrequent in modern surgical practice due to decreased utilization of non-absorbable silk sutures, suture granulomas can manifest with various clinical presentations, posing diagnostic challenges (2). Suture granulomas arise from the body's immune response to suture material, characterized by the formation of foreign body giant cells and chronic inflammatory infiltrates surrounding

the retained sutures (3). The timing of suture granuloma presentation varies, ranging from days to years postoperatively, depending on the type of suture material utilized during surgery (4). Clinical diagnosis of suture granuloma can be challenging, often necessitating radiological investigations such as ultrasonography or magnetic resonance imaging (MRI) to delineate soft tissue abnormalities. However, definitive diagnosis relies on histopathological examination, which typically reveals distinct aggregates of suture material surrounded by multinucleated foreign body giant cells (5).

Herein, we describe a case of recurrent suture granuloma in a patient who previously underwent surgical excision of a scar for similar complaints.

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Despite prior intervention, complete excision of the granuloma along with impacted suture material was imperative to prevent recurrence. We underscore the importance of considering suture granuloma in the differential diagnosis of painful scar site swelling and advocate for its complete excision to mitigate the risk of recurrence.

Case report

A 26-year-old female, para two, presented with a painful swelling at the caesarean section scar site. The pain was not associated with menstruation. She underwent surgical excision of the scar for similar complaints approximately five months ago. The histopathology report of the mass showed a densely organized chronic inflammatory lesion. On obstetric history, the patient had undergone two lower-segment caesarean sections, with the last caesarean section performed two and a half years ago.

Upon physical examination, a solid soft tissue mass, approximately 2×2 cm in size, tender on palpation, with restricted mobility, was noted on the former incision scar. Local site ultrasonography revealed a 1.3×1.2 cm ill-defined hypoechoic lesion without any vascularity in the subcutaneous and muscular plane at the scar site. Abdomino-pelvic MRI was conducted for further evaluation, revealing a 2×2 cm ill-defined irregular enhancing soft tissue lesion involving the subcutaneous tissue and rectus muscle plane in the right anterior abdominal wall with overlying skin retraction, likely suggestive of suture granuloma, as can be seen in Figure 1.

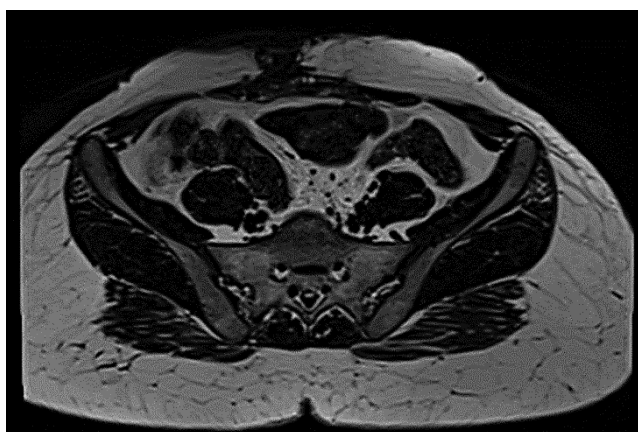


Figure 1: MRI shows 2x2cm soft tissue lesion, likely suture granuloma, in right abdominal wall

Differential diagnoses of scar endometriosis, inflammatory lesion, or foreign body granuloma were

considered, and the patient was scheduled for surgery under spinal anaesthesia.

Intraoperatively, the granulomatous tissue involving the rectus sheath and muscle was excised, and suture material of prolene was detected inside the mass, as can be seen in Figure 2. After excision of the mass, a defect measuring about 5×3 cm was present in the rectus sheath, which was repaired with Polydioxanone Suture, an absorbable suture. The skin was closed with ethilon (monofilament-synthetic-absorbable) suture with a subcutaneous drain left in situ.



Figure 2: Specimen image displaying excised granulomatous tissue involving the rectus sheath and muscle, with detected prolene suture material inside the mass

The histopathological report revealed classical findings of the foreign body reaction: fibro-collagenous tissue along with a tract around the foreign body lined by a collection of histiocytes, epithelioid cells, and a few foreign body giant cells, with surrounding fibro-adipose tissue showing mild inflammatory infiltrate composed of lymphocytes and plasma cells, as can be seen in Figure 3. No microorganism was detected from the wound culture.

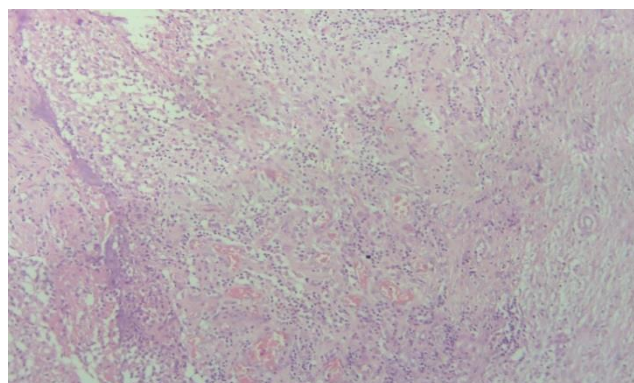


Figure 3: Histopathology image showing inflammatory infiltrate/foreign body reaction

Discussion

Post-operative scar site abdominal wall swelling poses a diagnostic challenge, with differentials including abscesses, hematoma, keloid, hernia, scar endometriosis, abdominal wall tumors, and post-operative suture granulomas (1). In the contemporary medical landscape, the incidence of suture granuloma is exceedingly rare due to diminished usage of non-absorbable silk sutures. These granulomas are primarily formed in response to foreign body reactions elicited by suture material antigenicity or bacterial infection. Although any suture material can incite a reaction, non-absorbable sutures such as silk and Dacron are most commonly implicated (6). Granulomatous reactions may involve either the resorption of organic material or the sequestration of inorganic material, and the timing of presentation can vary depending on the type of suture material employed during surgery, ranging from a few days to several years post-surgery (1, 7).

The histopathological characteristics of suture granulomas are contingent upon the nature of the suture material entrapped and the body's response to it. Typically, histopathological examination reveals distinct aggregates of suture material encapsulated by multinucleated foreign body giant cells. While radiological investigations have been deemed effective in identifying suture granulomas, definitive diagnosis hinges upon histologic findings (5).

The literature underscores various instances of suture granulomas, including an intriguing case reported, detailing a suture granuloma of the abdominal wall with intra-abdominal extension 12 years post-open appendectomy (1). Additionally, a study highlighted complications following abdominal fascial closures using various non-absorbable sutures, further accentuating the significance of understanding and managing suture-related complications (8). In the present case, the patient underwent excision of scar site swelling five-month post-caesarean section, but the recurrence of painful swelling ensued due to retained suture material from the initial surgery. This emphasizes the importance of meticulous removal of suture material during surgical procedures to mitigate the risk of complications such as suture granulomas and recurrence.

Conclusion

Suture granuloma should be considered in the

differential diagnosis of a post-operative scar site abdominal wall swelling. Comprehensive excision of the granuloma along with removal of impacted suture material is imperative to prevent recurrence and alleviate patient discomfort. Collaborative efforts between clinicians, radiologists, and pathologists are crucial in ensuring accurate diagnosis and effective management of suture granulomas.

Conflict of Interests

Authors declare no conflict of interests.

Acknowledgments

None.

References

1. Augustin G, Korolija D, Skegro M, Jakic-Razumovic J. Suture granuloma of the abdominal wall with intra-abdominal extension 12 years after open appendectomy. *World J Gastroenterol*. 2009;15(32):4083-6.
2. Postlethwait RW, Willigan DA, Ulin AW. Human tissue reaction to sutures. *Ann Surg*. 1975;181(2):144-50.
3. Chen L, Penne RB. Complications Associated with Polydek Sutures Used in Eyelid Lateral Tarsal Strip Procedures. *Clin Med Res*. 2022;20(2):107-110.
4. Takeshita N, Tohma T, Miyauchi H, Suzuki K, Nishimori T, Ohira G, et al. Suture Granuloma with False-Positive Findings on FDG-PET/CT Resected via Laparoscopic Surgery. *Int Surg*. 2015;100(4):604-7.
5. Secil M, Mungan U, Yorukoglu K. Suture granuloma after orchiectomy: sonography, doppler and elastography features. *Int Braz J Urol*. 2015;41(4):813-6.
6. Joyce S, Rao Sripathi BH, Mampilly MO, Firdoose Nyer CS. Foreign body granuloma. *J Maxillofac Oral Surg*. 2014;13(3):351-4.
7. Eladawi S, Ragab A, Kayed M, Elsabaa B, Khaled M. Suture granuloma extending intra-abdominally, detected five months postappendectomy. *BJR Case Rep*. 2021;7(5):20200191.
8. Hodgson NC, Malthaner RA, Ostbye T. The search for an ideal method of abdominal fascial closure: A meta-analysis. *Ann Surg*. 2000;231(3):436-42.

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