



Case Series on Stitch Granuloma

KEYWORDS

stitch granuloma, suture sinus, non-absorbable suture, prolene, ethilon.

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ABSTRACT A stitch granuloma is a foreign body granuloma around a buried non absorbable or delayed absorbable suture. This study aims at identifying the factors that could influence granuloma formation. This is a prospective case series of 15 cases of stitch granuloma done for a period of two years. Closure of non-contaminated abdominal wounds with absorbable sutures like polydioxanone (PDS) is less associated with stitch granuloma when compared with non-absorbable sutures like silk, prolene and ethilon.

INTRODUCTION:

A stitch granuloma is a benign granulomatous inflammatory lesion that may develop around the site of surgical procedure in which non-absorbable suture had been used. It is a rare complication of any surgery and has been reported in abdominal surgeries, dental procedures, gastrointestinal tract, head and neck surgery and also pulmonary operations. It is important for a prompt suspicion and diagnosis when a patient presents with a lump over the previous scar site as it may mimic malignancy. It is necessary to understand the factors behind this, so that corrective measures can be put in place.

OBJECTIVES:

This study aims at identifying the factors that could influence granuloma formation such as age, surgery symptom interval, presenting complaints, offending suture material and co-morbid conditions.

MATERIALS AND METHODS:

A prospective study of 15 patients was done over a period of 2 years (January 2014 to December 2015) with history, clinical examination, ultrasound, surgical excision and outcome measured.

All patients who presented in the family welfare and gynecological OPD with complaints of sinus and swelling over the previous scar site were included in the study. Detailed history and examination was done and pus culture and sensitivity was sent for appropriate patients. Age, BMI, presenting complaints, surgery symptom interval were taken into account. 2D ultrasound was done and diagnosis confirmed.



Fig 1: Ultrasound showing anechoic collection with linear echogenic material.

Anesthetist fitness for surgery was obtained. All patients underwent complete excision of the granuloma and reconstruction of skin, and a percutaneous drain was kept and the underlying suture material noted. The specimen was sent for histopathology.

RESULTS:

The study included 13 patients post cesarean and 2 patients post abdominal hysterectomy. The mean age of presentation was 26.4 years in cesarean group and 45 years in post hysterectomy group. The common presenting complaint was discharge in the previous surgical site in about 7 patients (46.6%), pain in 5 patients (33.3%) and swelling in 3 patient (20%). The mean BMI was 31.5 ranging from 27.7 to 35.7. Surgery symptom interval ranged from 2 months to 4 years post surgery with a mean time interval between surgery and symptom of 1.49 years. All patients underwent complete excision of the granuloma and reconstruction of skin with a percutaneous drain left in situ.

13 patients had Ethilon as the underlying suture material and 2 patient had prolene. Drain was removed on POD 2. The mean duration of hospital stay was 4 days and the histopathologic examination showed features consistent with sinus tract in all patients. Staphylococcus aureus was isolated in about 5 patients, 2 patients had coagulase negative staphylococci and proteus mirabilis and others had no growth. Patients were discharged on POD 5 with oral antibiotics and sutures were removed on POD 9 on OPD basis. 1 patient had persistent discharge postoperatively which was managed conservatively with repeat culture sensitivity and appropriate antibiotics.

DISCUSSION:

Sutures used in surgeries are foreign materials. To some degree all suture materials induce a foreign body reaction. Rarely there is delayed reaction to the buried intradermal sutures, leading to stitch granuloma formation. It is common following non-absorbable sutures and can occur anywhere in the body. Studies have shown stitch granulomas to be more common with silk sutures and staples.¹ The exact cause is unclear, though common etiology thought to be is the underlying suture material. The pathogenesis of a suture granuloma involves 2 steps; initial reaction of the tissue which reflects the amount of injury which is inflicted by the passage of the needle. Secondly, after the initial reaction subsides, the suture material causes a specific inflammatory reaction.²

While diagnosing this condition is simple using complete examination and ultrasound, a prompt suspicion and diagnosis is required as it may mimic tumors.

The most common clinical presentation is a mass or a discharging sinus and pain in the previously operated site, though usually it is painless and increasing gradually in volume. The time duration between the occurrence and operation varies from months to years.³

Ultrasound is the first line imaging modality. Rettenbacher et al have reported the sonographic appearance indicating the pre-operative diagnosis of suture granuloma as hyperechogenic single or double lines inside of a hypoechogenic mass. Echogenicity has been attributed to the reflectivity of the suture itself.⁴ Differential diagnosis includes scar endometriosis, recurrent tumor, abdominal wall hematoma/ abscess, abdominal desmoid. Scar endometriosis can be differentiated by its periodic pain associated with menses and ultrasound over the mass showing hypoechoic mass with scattered internal echoes.

The diagnosis of suture granuloma is particularly important in patients treated for cancer because the condition may resemble local tumor recurrence. Clinical findings, history and even the imaging features may be misleading. There are reported confusing lesions in the literature mostly detected by PET-CT.⁵ In such cases recently Mustafa Secil et al advocated the use of elastography and demonstrated prominent stiffness color, on color- scale and high values of 6 to 8 on strain ratio measurements.⁶ Also, an ultrasound guided FNAB will differentiate it from tumour recurrence.⁷

The treatment of choice remains excision of the granuloma in toto along with the offending suture material with reconstruction of skin. Percutaneous drain is also found to be helpful in early recovery to lessen the dead space created and avoid serous collections.



Figure 2: Excision of sinus tract in toto.



Figure 3: Suture (prolene) found within the sinus tract.

PREVENTION:

Complications like suture sinus, stitch granuloma can be more effectively avoided by closure of non-contaminated abdominal wounds with absorbable sutures like Polydioxanone (PDS), have shown better outcomes when compared with non-absorbable sutures like Silk.⁸

It is stressed that suture granulomas should be prevented by skillful wound closure based on proper knowledge of the physical characteristics of the wound, meticulous surgical technique- burial of knot, and proper selection of sutures.

Though suture granuloma following surgeries is not a serious complication it is easily preventable by understanding the risk factors, the nature of the suture material and the technique of wound closure.

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