

Foreign body granulomas associated with polypropylene – A report

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Abstract Foreign body granulomas due to polypropylene are rarely reported though such adverse outcomes with multifilament sutures like silk. A case is presented where such granuloma occurred in a laparotomy wound repaired with polypropylene.

Key words

Foreign body granuloma, giant cells, polypropylene, suture.

Introduction

Foreign body granulomas due to polypropylene are rarely reported in literature^{1, 2} and most such adverse outcomes occur due to multifilament braided silk.^{3,4} These granulomas can mimic chronic infections and malignancies causing diagnostic difficulties.⁵⁻⁷ One such complication was encountered in a patient whose laparotomy wound had been repaired with polypropylene. The case is reported due to its uncommon occurrence.

Case report

A 33-year-old male presented with a 10-month history of intermittent discharge from midline laparotomy wound. The discharge had started about three weeks after the operation for hemoperitoneum due to splenic trauma. Wound would intermittently drain then stopping for several weeks after antibiotic intake and wound dressings, only to start draining again. On

examination, there was a firm, non-tender lump, around 2cmx2cm along the laparotomy scar. Besides there were a few wide-mouthed sinuses with minimal serosanguinous discharge (**Figure 1a**). There was no fecal odour. Wound pus culture was positive for methicillin-sensitive Staphylococcus and did not grow any enteral organisms. Laboratory evaluation revealed normal blood works including normal complete blood count & C-reactive protein levels. USG Abdomen reported a nodular hypoechoic lesion, with the presence of hyperechoic lines in their center. Contrast enhanced CT scans of the abdomen reported a slightly enhancing soft tissue density lesion along the laparotomy scar abutting the underlying muscle layer. The imaging however ruled out any enterocutaneous fistulae or internal collections or intraperitoneal involvement.

Antibiotics were prescribed as per the culture sensitivity report and clinical impression of chronic inflammatory lesion and suture granuloma was made. Once the discharge had stopped, fine-needle aspiration of the lump was performed that showed numerous foreign body giant cells rendering a diagnosis of foreign body granuloma. Patient was counseled and open surgical exploration was undertaken under

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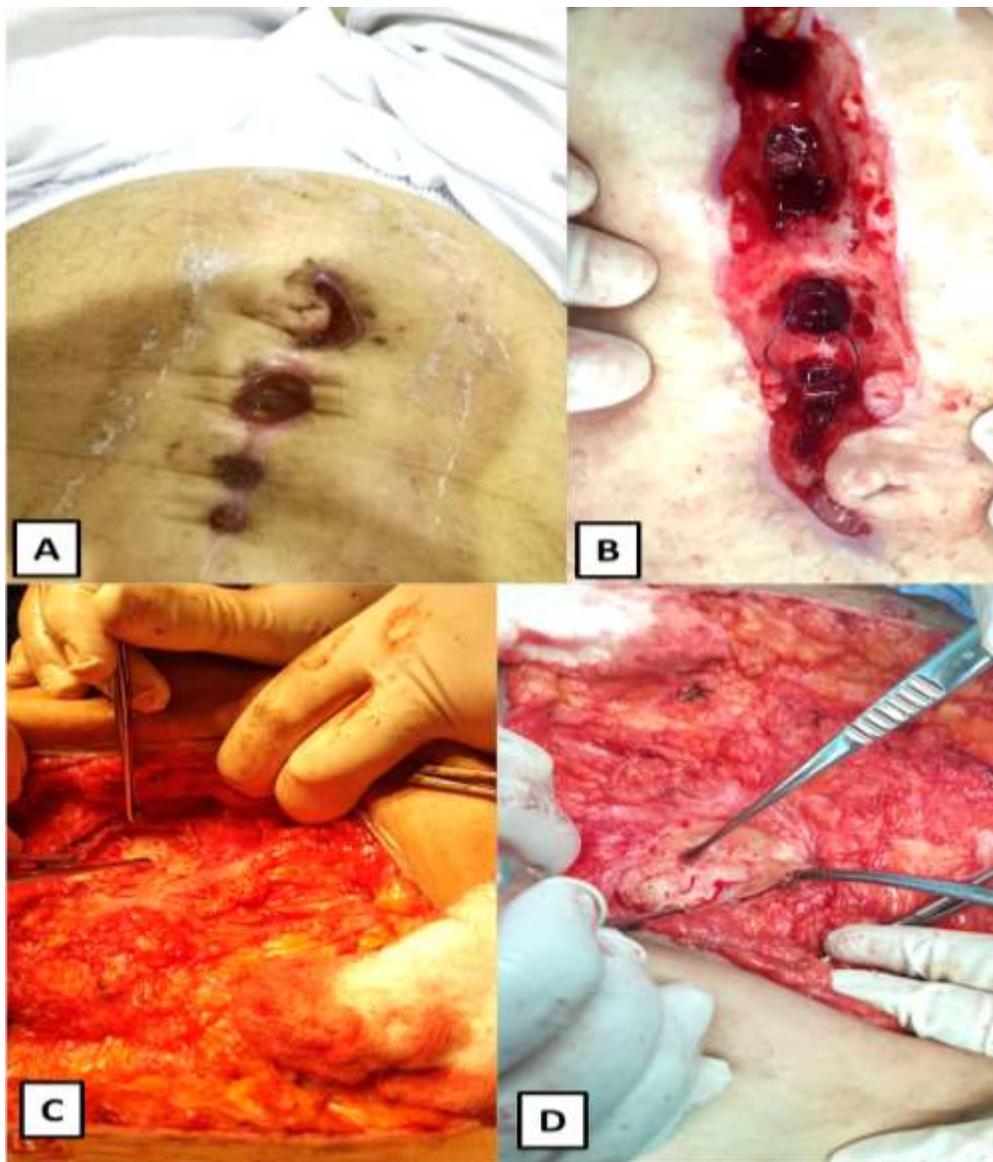


Figure 1 a- Multiple draining sinuses; **b-** Prolene suture (blue) being pulled out of the granulation tissue; **c,d-** Granuloma being dissected out

general anesthesia. Previous incision was opened down and suture line exposed. A granuloma and the deposits of granulation tissue were seen arising around thick polypropylene knots and sutures (**Figure 1b**). Thorough debridement and complete removal of previously placed sutures with granuloma was done (**Figure 1c, 1d**) shown with curette tip. Repair was done in layers and skin was closed with non-dyed Vicryl Rapide (polyglactin 910) followed by staples after placing a subcutaneous suction drain. Postoperative phase was

uneventful and drain was removed after three days. Excised specimen was sent for bacterial and fungal cultures as well as for histological examination. Histopathological analysis of the excised specimen revealed giant cells and chronic inflammatory cells thereby confirming the diagnosis of suture (foreign body) granulomas. Cultures were negative. The wound healed well and at 6 months follow-up, the patient was satisfied with no clinical evidence of hernia or recurrence of sinuses.

Discussion

A foreign body granuloma is a manifestation of the skin's humoral and cell-mediated immune system pathways that defends by walling off the "non-self" (foreign) living or non-living material. The foreign material can enter the skin by voluntary reasons or be caused by accidental inclusion of external substances secondary to cutaneous trauma.³

The granulomas most commonly appear as papules, nodules or plaques and may or may not ulcerate. People of all ages, ethnic backgrounds, and of either gender, can potentially develop a foreign body granuloma if exposed to an inciting foreign material. Patients can have exposures through wide range of activities including hobbies (splinters, cactus spines, arthropod parts, pencil leads, hair), accidents (silica), surgical procedures (talc, starch, sutures), cosmetic procedures (dermal fillers), tattooing, or intravenous drug abuse (talc used as filler for tablets).¹

Patients suffering from certain dermatologic conditions, such as pseudofolliculitis barbae, acne keloidalis nuchae, epidermoid cysts, ingrown nails and pilonidal sinus, are at an increased risk of developing keratin granulomas. Similarly, patients with sarcoidosis are more likely to develop sarcoidal granulomas at sites of previous trauma with identifiable foreign material.⁸

Suture granuloma is an uncommon complication and develops secondary to the use of non-absorbable suture material. The development of suture granulomas develops in two-steps beginning with the initial reaction of tissue inflicted by the passage of the needle and then followed by a specific inflammatory reaction to the suture material.⁴ Suture granulomas may occur anywhere in the body where tissues are

sutured, whether on skin or in viscera or cranium.⁹⁻¹⁰ The risk of development has been reported more with silicone coated sutures like Ticron, silk and polyfilament/ braided threads than the absorbable /monofilament suture materials. The granulomas may create diagnostic difficulties by mimicking tumors, chronic infections/abscesses or else excessive subcutaneous fibrosis.⁵⁻⁷ Granuloma formation with polypropylene is rarely reported.^{1,2}

Foreign body granulomas are managed as per the cause and presentation. The management modalities include surgical excision or else medical options including steroids, colchicine, allopurinol, ascomycin, isotretinoin and lasers.¹¹ For suture granulomas as in our case, surgical excision is the preferred path to achieve the final diagnosis and for eradication of the inflammation.

In conclusion, foreign body granulomas are uncommon lesions that can rarely complicate suturing by polypropylene. Surgical excision and confirmation with histopathology is the line of management.

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