

CAPSULECTOMY AT EXPLANT: RETHINKING SCS INFECTED GENERATOR POCKET MANAGEMENT IN THE IMMUNOCOMPROMISED – A CASE SERIES.

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INTRODUCTION

- Infection of spinal cord stimulator (SCS) systems is a rare but serious complication often necessitating device explantation.
- In immunosuppressed patients, infection poses greater concern due to impaired wound healing and reduced ability to clear low-grade bacterial contamination (**Fig. 1**).
- While standard treatment includes removing the implantable pulse generator (IPG), capsulectomy remains underexplored in pain medicine.
- In contrast, other surgical fields such as plastic surgery and cardiology have suggested that capsulectomy may aid in the resolution of device-associated infections (1-3).
- In this case series, we describe two immunosuppressed patients who underwent SCS explantation with capsulectomy for suspected infection and propose consideration of this technique in select high-risk populations.

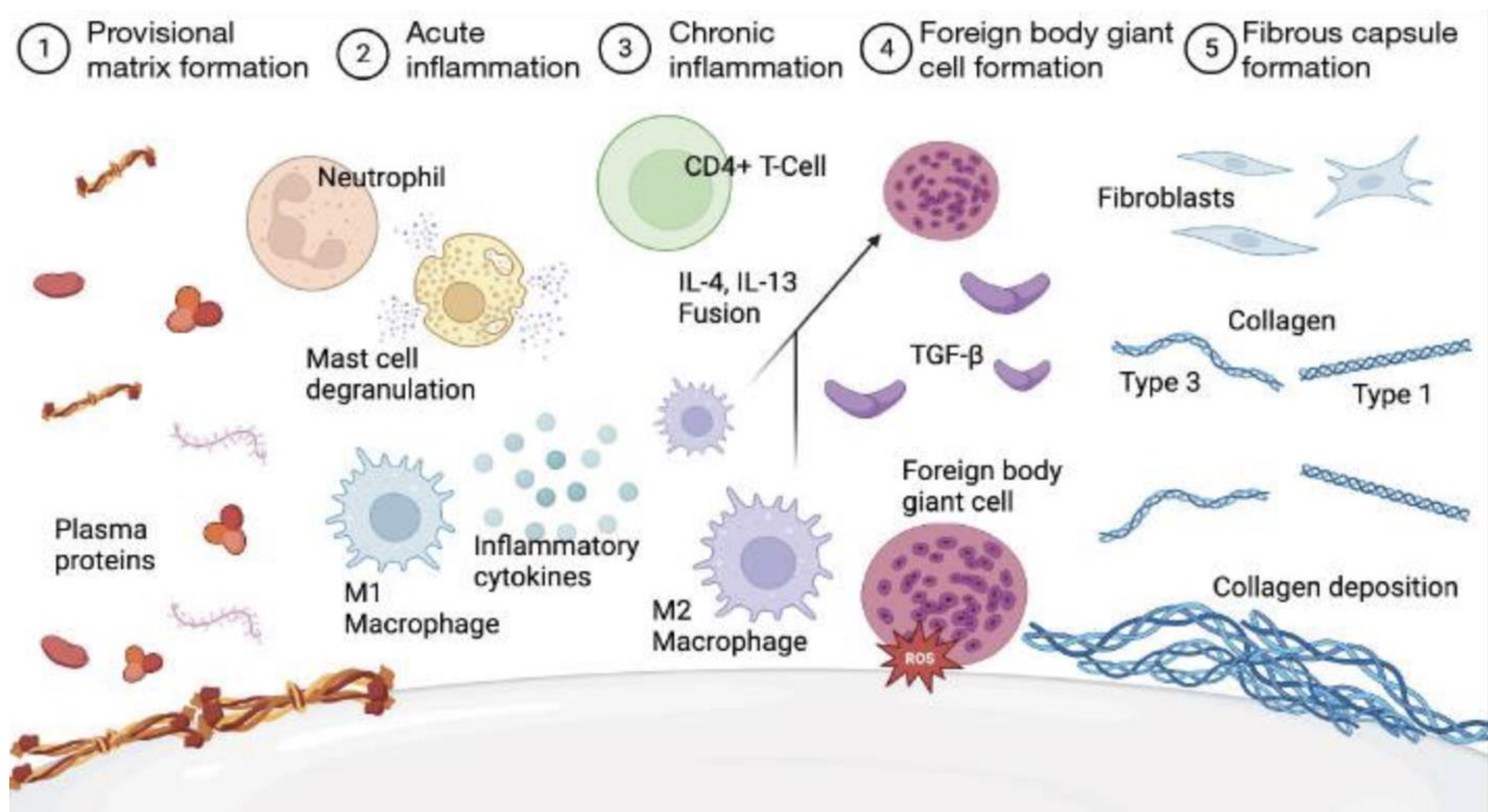


Figure 1. The foreign body reaction is a well characterized immunological response to foreign material within a surgical wound (4).

MATERIALS AND METHODS

- This case series does not include identifiable patient information and is therefore exempt from IRB review under Vanderbilt University Medical Center IRB policy. Verbal consent was obtained from both patients for the publication of these cases.

CASE REPORTS

Patient 1

- 64-year-old woman with ulcerative colitis and rheumatoid arthritis, on immunosuppressive therapy, who underwent SCS implantation for chronic lumbar radiculopathy.
- Three weeks postoperatively, although her radiculopathy improved, she developed systemic signs of infection—including fever, myalgia, leukocytosis, and pain over the IPG site (**Fig. 2A**). Despite treatment with oral antibiotics, concerns for persistent infection remained.
- She developed granulation tissue at the midline incision which tracked to the anchors.
- She underwent explantation of the SCS system with capsulectomy of the IPG pocket, as well as around the anchors, by the pain physician in conjunction with plastic surgery. Fluid from the infected pocket site grew *Staphylococcus schleiferi*, a bacteria usually found in household pets. The patient was caring for an ill cat with skin infection at the time of her implant. She improved with five days of postoperative antibiotics.

Patient 2

- Patient 2 is a 52-year-old female with a history of postlaminectomy syndrome following lumbar decompression and fusion, left lower extremity amputation as a consequence of a prior postoperative MRSA infection, rheumatoid arthritis (on immunosuppressive therapy).
- She underwent SCS placement and reported 80% improvement in pain intensity at six weeks. However, she subsequently developed swelling and pain over the IPG pocket site, along with intermittent night sweats (**Fig. 2B**). After a course of oral antibiotics, her infection symptoms improved, however signs of low-grade infection remained over the IPG pocket site.
- Due to her immunocompromised status, the decision was made to proceed with IPG explantation and capsulectomy of the pocket site (**Fig. 3**). Fluid from the pocket site grew MRSA; she was successfully treated with 7 days of postoperative antibiotics.

DISCUSSION

- These two cases highlight the potential role of capsulectomy during SCS explantation in the setting of suspected localized infection, especially in immunocompromised patients who have a difficult time clearing indolent infections.
- Removal of the fibrous capsule may enhance infection control by eliminating tissue that could harbor biofilm.
- Although current SCS explantation guidelines do not routinely recommend capsulectomy, it may represent an underutilized adjunct in the management of generator pocket infections, particularly in immunocompromised patients.
- Further studies are warranted to evaluate its effectiveness in infection resolution and long-term outcomes.

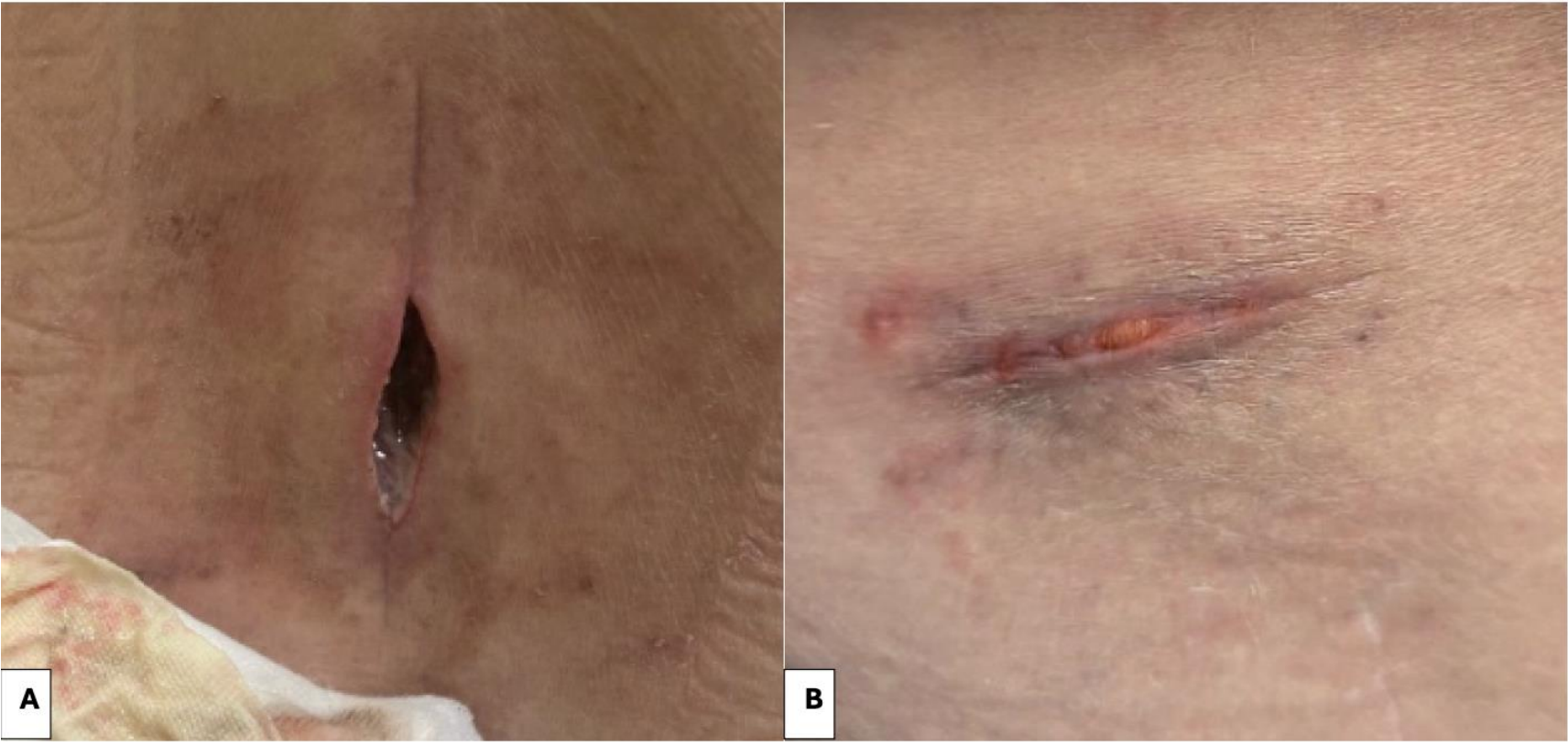


Figure 2. IPG site for Patient 1 (Fig. 2A) and Patient 2 (Fig. 2B) during pre-operative visit for consideration of SCS explanation.

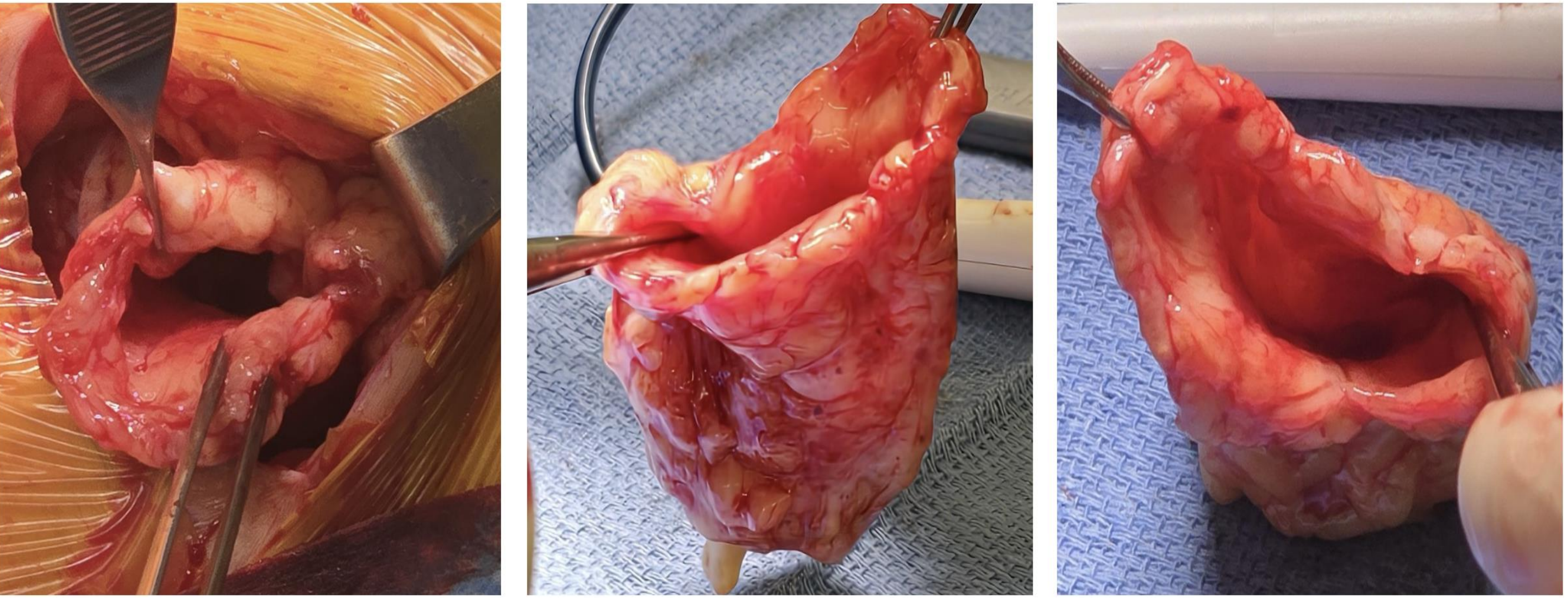


Figure 3. Explanted fibrosed IPG capsule pocket from Patient 2.

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