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## An exceptional case of suture related pseudo-infection (SRPI) / granuloma following total knee replacement: Case report

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### Abstract

Total knee replacement is opted for a better lifestyle in advanced osteoarthritis. Absorbable sutures are widely used to close the wound after surgery. We present a case of suture related Granuloma / foreign body reaction mimicking joint infection post Total Knee Replacement. This complication is rare and must be kept in mind in future follow ups of the patient. All such cases should undergo microbiological as well as histological sampling with caution for prosthesis exchange and low propensity suture with less volume should be used after debridement.

**Keywords:** Advanced osteoarthritis, absorbable sutures, wound closure

### Introduction

Post joint replacement, infections are one of the most dreaded complications. Timely treatment with high index of suspicion is necessary to increase chances of success. Careful patient monitoring and prompt wound debridement in suspected cases of joint infection is essential for favorable outcome<sup>[1]</sup>. Foreign body reactions are seen with non-absorbable sutures. Few cases have been reported with adverse reactions to absorbable sutures like Vicryl<sup>[2]</sup>. Five cases are described mimicking infection after Total Hip Replacement<sup>[3,4]</sup>. We report a case of suture related foreign body reaction after 8 weeks of Total Knee Replacement mimicking joint pseudo-infection. This could be a novel complication, suture related pseudo infection (SRPI).

### Case Report

Total knee replacement was performed in a 65-year-old women who was suffering from advanced osteoarthritis of left knee after getting relevant X rays and informed consent. Midline anterior incision with medial parapatellar approach was used. Surgery took around 1.5 hours and wound was thoroughly washed and closed in layers. Vicryl was used for closure of Subcutaneous/fascial layer and quadriceps layer. Drain was put which was removed after 48 hrs. Patient had no risk factors for infection like diabetes mellitus / chronic steroid use or history of any recent infections. Antibiotics were given according to the protocol in joint replacement. Post-operative period was uneventful and suture line healed appropriately. Patient was followed up regularly and rehabilitation was started. Patient was doing well clinically and X rays were satisfactory in the follow up period.



**Fig 1:** Pre-Operative X-Ray



**Fig 2:** Immediate Postoperative X-Ray

During 8<sup>th</sup> week post-surgery, the patient came with complaint of mild pain and discharging sinus along surgical scar mark. Patient was afebrile.

On examination, a small sinus with serous discharge, non-foul smelling was found at the inferior margin of old healed scar. There was no joint effusion.



**Fig 3:** (Clinical picture of knee with sinus over surgical scar mark)

Discharge was sent for culture sensitivity and gram stain studies which came out to be normal.

Blood parameters in the form of CBC, ESR, CRP, Blood cultures were within normal limits except high ESR (40mm). Ultrasound knee was done which revealed small collection around infrapatellar area (subcutaneous and fascial layer) with no joint effusion.

X rays were done and prosthesis was found to be in a satisfactory position.



**Fig 4:** X Ray at 8<sup>th</sup> week Post. surgery

In view of high suspicion and after taking informed consent, surgical exploration was performed as early as possible after the presentation.

The debridement was performed through old healed scar with sinus tract excision.

Subcutaneous and fascial layers were opened.

**Intra-operative findings:** Minimal fluid with 2-3 hard lumps of tissue, whitish in color were seen in supra and infra patellar regions below the fascial layer. Joint arthrotomy was not done due to findings limited to subcutaneous layers and fascial layers on ultrasound.

Lumps were excised, thorough wound irrigation and debridement was done. Drain was put which was removed after 48hrs and tip was send for culture sensitivity.



**Fig 5:** Clinical photo of intra-operative tissues and lumps

Tissues with lumps were sent for biopsy, culture-sensitivity, fungal staining and tubercular staining.

Wound was closed in layers with low propensity suture (vicryl) and less volume was used.

Post operatively antibiotics were started according to our protocol.

After the reports of microbiology sampling which came out to be negative and histopathological reports showed non-specific inflammation with foreign body granuloma with sinus lined with granulation tissue and lymphoplasmacytic inflammatory infiltrate, patient was put on oral antibiotics for 2 weeks

Patient did well during post-operative period and was followed up to 1 year with no recurrence of discharge from surgical scar.

### Discussion

A suture granuloma forms due to body's immune system attempting to wall off foreign body. Foreign body reaction may occur with high volume sutures due to extensive fat necrosis.

Case presented demonstrates that foreign body reaction to absorbable suture after joint replacement might be difficult to differentiate from surgical site infection.

Patient in the post-operatives period did well with no complaints. Suddenly developed discharging sinus at 8-weeks

post-surgery. High index of suspicion of joint infection led to early exploration and debridement.

Histopathology conformed foreign body reaction with no joint infection.

Till date 5 such cases of suture related adverse reactions have been reported<sup>[3, 4]</sup>. All 5 cases received same re-absorbable sutures as in our case (Vicryl) and timing of suspicious infection/foreign body reaction is almost identical (8 weeks) after surgery.

Also, foreign body reaction to suture material might have been classified as surgical site infection with negative culture, since histopathological samples are not routinely collected<sup>[4]</sup>.

It has also been demonstrated that suture extrusion is a common benign complication of surgical wounds. This phenomenon depends on volume (knots) and material (Vicryl more prone to reactions than Polysorb)<sup>[5]</sup>.

So peri-prosthetic joint infection suspicion with negative cultures is commonly dealt by orthopaedic surgeons.

### Conclusion

Suture related pseudo-infection (SRPI) after joint replacement might be a novel complication.

SRPI can occur around 7-8 weeks of surgery (period around with Vicryl may get absorbed) as happened in our case and phenomenon is difficult to differentiate from post-operative joint infection.

Sinus tract with superficial sterile abscess with foreign body granuloma in subcutaneous / fascial layers may develop.

High index of suspicion, early investigations and early intervention in the form of surgical exploration and irrigation should be the treatment protocol in cases of suspected joint infection for favourable outcome.

Low propensity suture material with low volume (less knots) should be preferred to close surgical wounds after primary surgery to avoid any foreign body reaction / SRPI. Same should be done after irrigation and debridement in cases who developed SRPI/ Foreign body reaction as in our case.

### Conflict of Interest

Not available.

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