

**Surgical management of foreign body granuloma of face: A Case Report**<sup>1</sup>Dr Asutosh Das, Kalinga Institute of Dental Sciences, KIIT Deemed to be University, Bhubaneswar, Odisha, 751024<sup>2</sup>Dr Alok Sethi, Kalinga Institute of Dental Sciences, KIIT Deemed to be University, Bhubaneswar, Odisha, 751024<sup>3</sup>Dr. Chhaya Jha, Consultant, Ramakrishna Mission Tb Sanatorium, Ranchi, Jharkhand, 834002**Corresponding Author:** Dr. Chhaya Jha, Consultant, Ramakrishna Mission Tb Sanatorium, Ranchi, Jharkhand, 834002**Type of Publication:** Case Report**Conflicts of Interest:** Nil

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**Abstract**

**Rationale:** A foreign body granuloma is a cellular attempt to contain any offending agent which couldn't be eradicated. Foreign body granuloma of extremities are very often reported however those of face are very rare. They pose a diagnostic challenge and get reported only if patients turn symptomatic.

**Patient concerns:** We report a case of a 24 year old male patient visiting our OPD with a swelling over right cheek region following an accident 5 months back. The patient was concerned about his face being 'deformed'.

**Diagnosis, Intervention and Outcome:** Radiology was of little help in the diagnosis. Surgical exploration under local anesthesia was performed with patient's consent. A thorn enclosed within a granulomatous pouch was recovered suggesting foreign body granuloma.

**Lessons:** Surgical intervention should be made after informing risks like facial nerve injury, stenson duct damage, post-operative ectropion, scar etc.

**Keywords:** Foreign Body, Foreign Body Granuloma, Abscess, Facial Nerve, Implantation Dermoid

**Introduction**

Granulomatous infections are a distinct pattern of chronic inflammation encountered seldomly in infectious as well as non-infectious conditions. A foreign body granuloma is a cellular attempt to contain any offending agent (relatively inert) which couldn't be eradicated. Detection of retained foreign bodies can be extremely difficult when the patient presents with non-specific symptoms such as pain and/or swelling without citing any trauma history<sup>1</sup>. Foreign body granuloma of lower and upper extremities are very often reported however those in facial region are few. Thorns, splinters are most common foreign bodies found in the peripheries while dental biomaterials, fillers are much common in face. Penetration of foreign bodies may present a diagnostic challenge to the surgeon as all foreign bodies are initially missed. In case of wooden foreign body only 15% are well visualized on plain radiographs and are therefore often missed or misdiagnosed. The foreign body can be identified using polarized light where it appears to be refractile.<sup>2</sup>Delayed diagnosis and treatment may cause granuloma or abscess formation, septicemia or lead to secondary hemorrhage. They can also undergo distant embolization. The foreign body if not removed immediately, gets encapsulated within a fibrous tissue forming a granuloma.

## Case Report

**Patient information:** In this case report we present the case of a 24 year old adult male who reported to Oral and maxillofacial surgery OPD with a history of Road Traffic Accident 5 months back. He had a fall on a thorny bush and sustained mild abrasions. The patient was worried about the “deformity” and wanted its management. He was sceptical about having scar on his face post intervention and has not received any treatment for the same before.

**Clinical Findings:** There was no loss of consciousness and no report of any other physical injury. The patient however started developing solitary hard swellings (2\*2 cm) of diameter around 2 cm on his right malar region, right arm and on his back since last 2 months. The swelling on his right malar region was solitary, firm in consistency, gradually increased in size, non-fluctuant, non-reducible and non-tender with no loss or alteration of facial nerve functions. The swelling was around 3.5 cm in front of right tragus. The overlying skin was intact with slight darkening of the skin and no raise of temperature or any secondary changes.(pic 1).

**Diagnostic Assessment:** Provisional diagnosis based on the history was implantation dermoid. CBCT scan was done which revealed no consolidations or bony exostoses. Treatment plan constituted of surgical exploration of the swelling under local anesthesia. Patients consent was taken for the procedure and its documentation was done.

**Therapeutic Intervention:** Local anesthetic infiltration (Lignocaine 2% , 1:2 lakh adrenaline) was given in the surgical field and a linear incision parallel to the zygomatic arch was placed over the swelling and layer by layer dissection was done. A fibrous sac enclosing a thorn measuring around 2 cm was found embedded within the zygomaticus muscles. Careful dissection was done while monitoring the facial nerve function. The specimen was taken out in toto and sent for histopathological evaluation. (pic 2) Closure was done in layers using 3.0 vicryl and 5.0 prolene. Antibiotics and analgesics were prescribed along with topical antibiotic ointment application.

## Follow up and Outcomes

Suture removal was done after 7 days.(pic 3) The wound healing was satisfactory and showed no dehiscence. No altered facial nerve function was noted. The patient was satisfied with the treatment outcome and no visible scarring.Follow up was done after 1 week, 2 weeks, 1 month and 3 months .Similar thorns over the patient’s back and right arm were recovered by the general surgery team under local anesthesia.

Histopathology specimen presented a connective tissue component with mixed inflammatory infiltrate consisting of plasma cells, acute inflammatory cells, giant cells and histiocytes surrounding foreign bodies which had plant cells suggesting foreign body granuloma.

## Discussion

Foreign body granuloma covers the localized response of substances entering the body from the external environment. These reactions may occur as a result of immunological response against the foreign body either as a part of the object or the microorganisms that it carries along with it.<sup>3</sup> The lesions are frequently epithelioid cell granuloma with giant cells along with proliferating fibroblasts. Most of the time these lesions resolve by fibrolysis.<sup>4</sup>

Foreign body granuloma does not have any definite age or gender predilection. It initially begins with acute inflammation at the entry site. However after a period of few weeks or months a chronic inflammatory reaction might begin presenting as a nodule or indurated papule.<sup>4,5</sup> In some cases cellulitis, abscess, ulceration and edema might be present. The formation

of a foreign body granuloma begins with the involvement of neutrophils. When the neutrophils are unable to engulf the foreign particle macrophages become active and secrete cytokines. The secreted cytokines draw more macrophages and peripheral monocytes at the site of entry forming a chronic inflammatory granuloma. The macrophages may fuse together to form a multinucleated giant cell.<sup>6,7</sup> A foreign body near bone exhibits either osteoblastic or osteolytic or both kind of reactions<sup>8</sup>. As radiographically wooden splinters can be missed they can also be misdiagnosed as soft tissue neoplasm.<sup>9</sup> The knowledge of facial nerve anatomy as well as parotid duct anatomy plays a huge role in prognosis of such cases similar to the one reported here. The location of Stenson's duct is in close relation of the buccal branch of facial nerve and therefore injury to both the structures is very common due to trauma or blind surgical procedure. Excessive tissue dissection, edema, localized hematoma, trauma due to thermocoagulation or inadvertent deposition of local anesthetic agent may present with some degree of nerve injury.<sup>8</sup> The zygomatic branch of the facial nerve crosses the zygomatic arch at  $2.0 \pm 0.5$  cm from the anterior wall of the external auditory canal. The main trunk of facial nerve branches at around  $3.0 \pm 0.31$  cm from the postglenoidal tubercle with a mean distance of  $2.3 \pm 0.28$  cm from the inferior concavity of the external acoustic meatus.<sup>7,8,9</sup> Careful dissection considering these landmarks is the key to prognostic success in such cases. Patient's desire for a scarless procedure should also be met and a minimally invasive technique should be preferred. Apart from trauma, iatrogenic cause involving use of alloplastic biomaterials, silicone prosthesis, dermal fillers etc have shown instances of foreign body granuloma formation as well.<sup>10,11,12,13</sup> Therefore as clinicians one must be aware of the risks involved with the procedure, diagnosis and management of complications.

**Informed consent:** The patient has consented for publication for academic interest.

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### **Legend Figures**



Figure 1: Solitary hard swelling in the right malar region



Figure 2: A thorn along with a fibrous sac dissected out



Figure 3: Post-operative closure done in layers. Facial nerve functions intact.