Persistent Cutaneous Discharging Sinus, A Diagnostic Dialema. Case Report and Literature Review

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Abstract

Paper describes a case of persistent cutaneous discharging sinus after multiple failed surgeries. Different diagnostic modalities were used to determine the cause of discharging sinus. Description of the diagnosis and surgical procedure is present with literature review.

Key words

Sinus, Fistula, Foreign body, osteomyelitis, odontogenic infection

Introduction:

Sinus tract is a channel that starts or ends in one opening. These sinuses have discharging tracts which drain pus to the exterior[1].

Persistent sinus tracts are not very common in oral and maxillofacial region[2]. Several causes have been attributed to discharging sinuses.

These include infections, foreign body, distal obstruction, epithelial lined walls, inadequate drainage, dense fibrosis and tumors.[3]

Misdiagnosis and inappropriate treatments are common for cutaneous sinuses due to their rarity. They are also inappropriately called fistulas where as in reality they are sinus tracts which are draining pus[4].

Most commonly the cause is infection (bacterial origin). This can be due to osteomyelitis or abscess of dental origin in oral and maxillofacial region[5].

Misdiagnoses in such cases leads to unnecessary antibiotic and surgical intervention[6].

We present a case report of a patient with a persistent discharging cutaneous sinus which was successfully treated in our private practice.

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Case report

A 4-year-old girl reported to our private clinic presenting with a discharging sinus in the left facial region. The parents were not aware of any injury, but they noticed discharging sinus in the area a few months back (Figure 1).

Figure 1 4 year old girl with a cutaneous discharging sinus. Scars from previous surgeries can be seen.

She had been operated multiple times during these few months, but the sinus persisted. Patient was healthy and her clinical examination revealed a discharging sinus in left face region. Previous surgery scars were visible and there was considerable swelling.

Patient had limited mouth opening and swelling was non tender with normal temperature.

Her intraoral and lymph nodes examination was unremarkable. Patient had undergone comprehensive radiological screening including computerized tomography(CT) scan, plain radiographs and cone beam computerized tomography scans(CBCT)(Figure2).

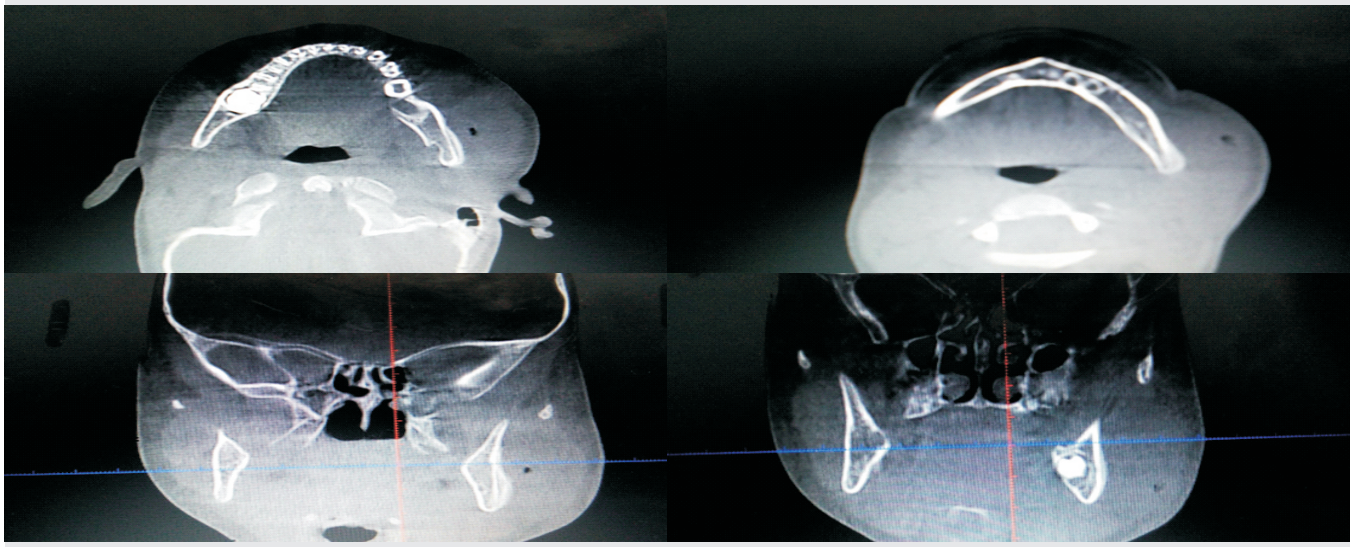

Figure 2: Images from CBCT scan of the patient. Note radiolucency in left facial region of the patient.

Blood tests including culture was normal. Whereas, her ultrasound report revealed presence of a foreign body in left mandible region overlying the sinus in the premolar area. A radiopaque material was inserted through the sinus and orthopantomogram(OPG) was examined to explore the source of sinus tract that ended in lateral ramus. (Figure3).

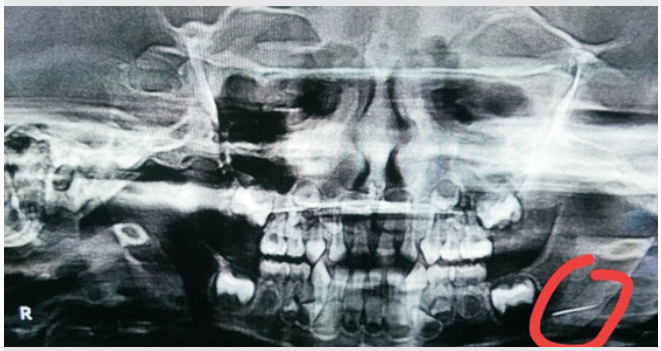

Figure 3: OPG of the patient. Note Gutta Purcha point pointing to lateral ramus.

Ultrasound was repeated which revealed the same result of a foreign body in the left facial region overlying the premolars. (Figure 4-5)

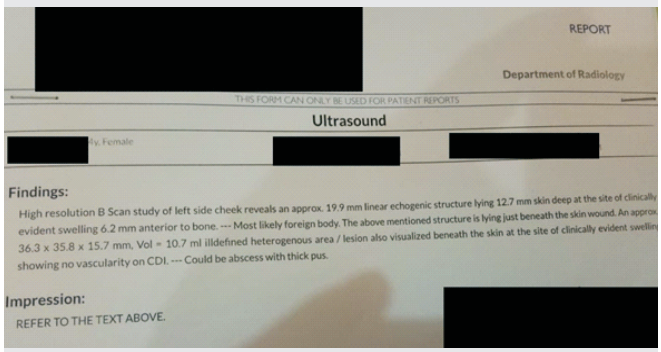

Figure 4: Ultrasound report and of the patient diagnosing it abscess formation secondary to foreign body.

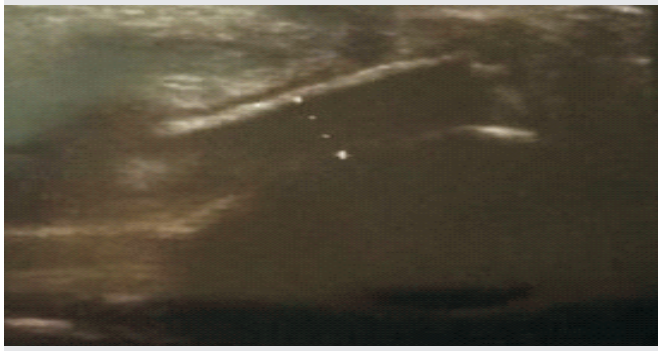

Figure 5: Ultrasonographic Image

As multiple failed surgeries had already been done in this area, a decision was made not to explore it. A magnetic resonance imaging (MRI) scan was done to reveal the true cause and avoid ionizing radiation. The radiologist reported of osteomyelitis of lateral ramus (Figure 6).

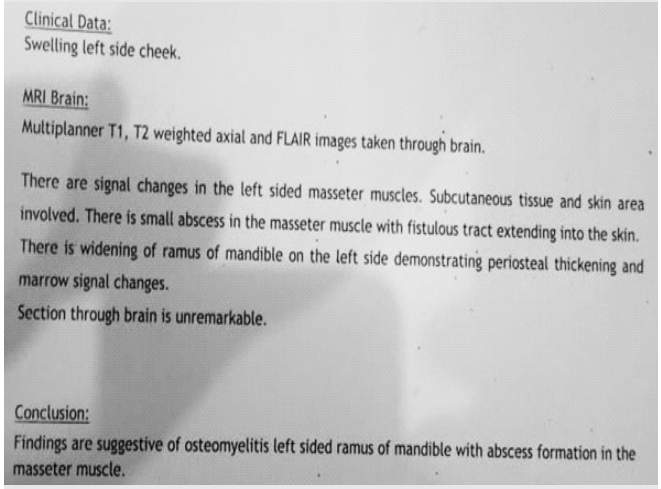

Figure 6: MRI report of the patient suggested that it was an osteomyelitis.

Blood culture and other relevant tests were also done but they were inconclusive(Figure 7).

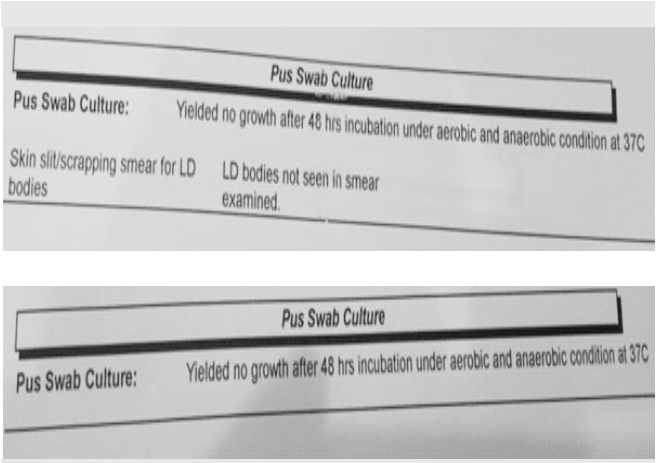

Figure 7: Culture and sensitivity of the patient.

A provisional diagnosis of Garre's osteomyelitis was done. Under aseptic conditions the area was explored, a few bone spicules were found in the lateral ramus area which were removed, and then the area was washed with normal saline. Sinus was excised and the wound was closed primarily.

Patient was discharged on empirical antibiotics and follow up was advised after 2 weeks. Swelling was considerably improved but discharging sinus was formed again.

Palpation revealed a hard swelling in the mandibular angle region and decision was made to explore the angle region though the existing scar.

To avoid any injury to the facial nerve branches a blunt dissection was performed. A wood twig was found and removed which was present in facial area overlying angle of the mandible, I cm anterior to tragus (Figure 8).

Figure 8: Foreign body removed from patient left facial region.

Note size of wooden twig. The wound was closed primarily after excising sinus tract, and patient was discharged. Patient reported with healing sinus tract and improvement in mouth opening within a week (Figure 9).

Figure 9 Patient after healing of sinus tract

Discussion

Studies have supported the fact that the discharging sinuses are being misdiagnosed and thus patients subjected to unnecessary surgeries, antibiotics, biopsies and even radiotherapies[7]. In our case report the same has been done to the patient including biopsy of the specific area. Most common cause of a discharging sinus in young patients is of odontogenic infections[8].

Patient's intraoral and radiographical examination did not reveal any odontogenic cause for this sinus. Other infections were also ruled out by culture and sensitivity including leishmaniasis which is endemic in the area from where the patient belong. Second most common cause is of osteomyelitis of the jaw[9].

Histroy of fall and malnutrition in children leads to green stick fracture. These fractures went unnoticed by the parents and physicians might leads to osteomyelitis. Radiologist also reported osteomyelitis of lateral ramus in MRI report. Area was explored and bony spicules were also found but it did not heal the sinus tract.

Third most common cause of discharging sinus is foreign body[10]. Although metal objects can easily be detected by radiographic studies, other materials pose a challenge[11]. Bi planer plain radiographs can easily detect metal, glass and gravel but are less effective in detecting radiolucent objects such as wood, plastic etc.[12].

CT and CBCT scans are very accurate in identifying radiopaque objects as well as visualizing inflammation, abscess and granulomas but have the same limitations as plain radiographs[13]. MRI scans can very accurately diagnose retained foreign bodies. However, gravel or metallic foreign bodies are not properly visualized.

In addition, the ferromagnetic streak artefacts and danger of movement of magnetic materials as they are attracted to the strong magnetic field[14]. Ultrasound is very useful in detecting foreign bodies, particularly in the detecting radiolucent objects. Lack of prior training, experience with anatomical detail and appearance of different materials on ultrasound are paramount in diagnosis of foreign bodies. Objects may be

mistaken for anatomic structures and collection of abscess as foreign bodies. Foreign bodies will appear hyperechoic with variable shadowing and reverberation[15].

Foreign body type and location can be found by its acoustic details. Gravel or woodl appears hyperechoic with a strong and distinct shadow. Metals show a "comet tail" or distal, regular, parallel lines secondary to acoustic reverberation[15]. Glass appears with variable acoustic shadows, having both comet tail or diffuse beam scattering. Abscess typically appear as hypoechoic spherical collections of echogenic fluid with poorly defined borders.[15].

Ultrasound was done multiple times and each time ultrasonologist detected a foreign body in cheek area overlying the sinus tract which was at considerable distance from the actual position of wooden twig i.e. 1 cm anterior to tragus of ear in a diagonal position. Scars from multiple surgeries were also present in the same area pointed out by ultrasonologist which was already explored in previous surgeries suggesting cause for failed surgeries.

The proper diagnosis of a discharging sinus is very important, and it should be done by a multidisciplinary team including surgeons, radiologists, pathologists and vascular surgeons. In our case we were eventually able to remove the foreign body, but considerable time has been spent in proper diagnoses of the patient.

Conclusion

Misdiagnosis can lead to futile surgeries which may result in morbidity and mortality of the patient. It is important to provide safe and effective treatment to the patients after proper diagnosis. Surgeons should have a basic back ground knowledge of radiology and should only offer treatment after being satisfied with diagnosis offered by the radiologist. Patient assurance and satisfaction must be the priority of surgeons and before any intervention the diagnosis must be confirmed by all means to avoid unnecessary exploratory surgeries.

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Author Contributions

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2. Sheraz Alam- Data handling and critical analysis
3. Muhammad Irshad- Manuscript drafting
4. Momena Rashid- Bibliography
5. Sobia Salam- Proofreading and critical analysis
6. Yusra Jamil- Data entry