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Scalp actinomycosis presenting as soft tissue tumour: A case report with literature review

Murtaza Akhtar[a,*], Manish P. Zade[b], Pawan L. Shahane[b], Akshay P. Bangde[a], Sagar M. Soitkar[a]

[a] Dept. of Surgery, NKP Salve Institute Of Medical Sciences, Digdoh Hills, Hingna Road, Nagpur 440019, India
[b] Dept. of Plastic Surgery, NKP Salve Institute Of Medical Sciences, Digdoh Hills, Hingna Road, Nagpur 440019, India

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ABSTRACT

INTRODUCTION: Actinomycosis is a rare subacute or chronic bacterial infection caused by Gram positive, anaerobic or microaerophilic bacilli. It is characterized by suppuration, abscess formation, tissue fibrosis, draining sinuses & rarely as a soft tissue mass mimicking a tumor.
CASE REPORT: A 16 year old boy sustained a trauma over right forehead & wound after which patient presented with swelling over right forehead which was excised and was histopathologically reported as angiomatous lesion. Patient presented with recurrent swelling with ulceration over the same site. CT scan showed soft tissue mass with periosteal reaction of right frontal bone. Wide local excision with removal of periosteum was carried out. Raw area was covered with rotational scalp flap. Histopathology of the excised specimen showed features of actinomycosis.
DISCUSSION: Cutaneous actinomycosis presenting as pseudocarcinomatous or sarcomatous mass is rare. Trauma is a common preceding event which was observed in present case. Histopathological confirmation is mandatory with visualization of sulfur granules. It is managed by high dose IV antibiotics. Surgical resection is a useful adjuvant therapy specially in large, disfiguring masses not responding to medical treatment and where excisional biopsy is helpful in establishing the diagnosis surgical excision alone is not curative, post operative long term antibiotics are adjuvant therapy to avoid recurrence.
CONCLUSION: Actinomycosis of scalp skin is a rare entity and tumor like presentation is still uncommon. Lesions not resolving with routine antibiotics therapy should be suspected clinically as actinomycosis and treated with high dose antibiotics as histopathology from small biopsy is unreliable.

1. Introduction

Actinomycosis is a rare soft tissue infection known in Cattles, since early 19th century and were misclassified as fungal infection [1]. In 1857, human form was first reported in literature [1]. Actinomycosis israelii the causative organism was isolated in 1891 [1]. Cervico-fascial actinomycosis is the most common site of infection. Involvement of scalp by actinomycosis and tumor like presentation is rare causing diagnostic dilemma and could be mistaken for a neoplasm [2]. Lack of clinical response to short course antibiotic therapy in absence of histopathological confirmation culminates into surgical excision. This is the rationale for publishing this case reports to make clinicians aware that adequate antibiotic therapy could save surgical excision provided there is a strong clinical suspicion.

2. Case report

A 16 year old boy had a history of fall from bicycle 4 years back and sustained a trauma over right forehead & the wound was treated at primary health center without suturing by cleaning & dressing of the wound which healed over a period of time. Three years after healing of first wound patient presented with the complaint of swelling over previous healed injury site & swelling was excised under local anesthesia. The histopathology of the excised specimen suggested angiomatous lesion (Fig. 1). The swelling recurred for the second time 7 months after excision and gradually progressed in size to present with a tumoriform lesion of 10 cm × 7 cm (Fig. 2) and it continued to grow inspite of repeated course of antibiotics giving a suspicion of angiomatous tumour. Ear & nose/oral/throat exam did not reveal any abnormality. There was no cervical Lymphadenopathy but the Superficial Temporal artery on right side was bounding with a thrill & bruit suggestive of increased vascularity due to tumourous growth. In view of previous histopathology report of angiomatous lesion no biopsy was taken with the fear of hemorrhage from the tumor. Pus culture showed no

* Corresponding author.
E-mail address: murtazaakhtar27@gmail.com (M. Akhtar).

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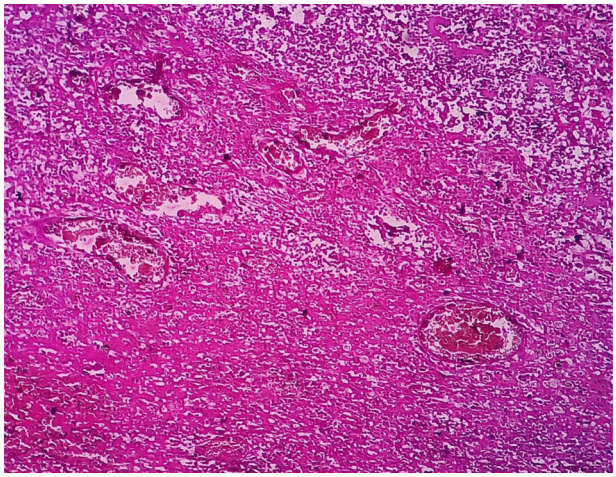

Fig. 1. Sections reveal many dilated and congested vascular channels with RBC's in their lumen. Intervening fibroconnective tissue shows mild mononuclear inflammatory infiltrate.

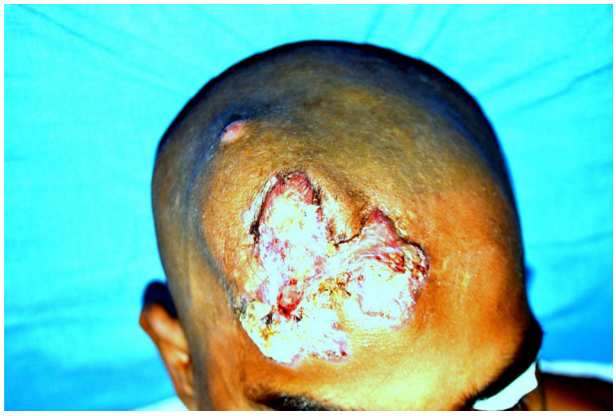

Fig. 2. Pre-operative photograph showing an ulcerated tumor over right frontoparietal region.

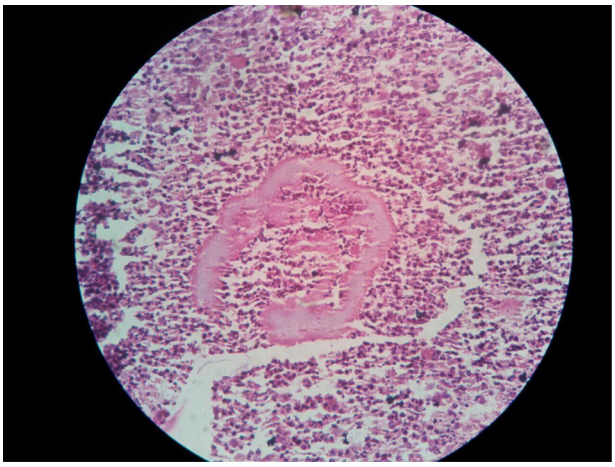

Fig. 3. Histopathology report showed dense inflammatory lymphocytes and plasma cells lymphoid follicles with many fungal colonies surrounded by micro abscess suggestive of actinomycosis.

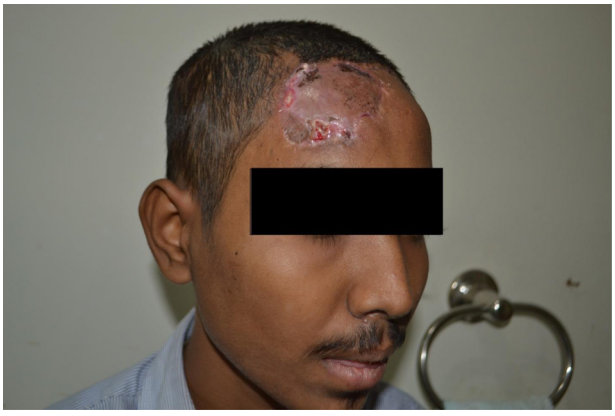

Fig. 4. Post-operative photograph showing healing wound.

growth. CT scan of head showed soft tissue mass over right frontal region with periosteal reaction of frontal bone. Wide local excision with a margin of 2 cm and removal of periosteum was carried out. Excision resulted in defect over forehead and frontal scalp with exposed frontal bone which was covered by pericranial flap with split thickness skin graft. Post operative recovery was uneventful. Histopathology report showed dense inflammatory lymphocytes and plasma cells, and lymphoid follicles with many fungal colonies surrounded by micro abscess suggestive of actinomycosis (Fig. 3). Post operative patient was started on IV Amoxicillin + clavalunic acid for ten days followed by Doxycycline 200 mg OD for 3 weeks period. After one month post surgery wound was healed satisfactorily and further 3 months follow up showed no local recurrence (Fig. 4)

3. Discussion

Human actinomycosis was 1st described in early 19th century when they where misclassified as fungal infection [1]. The word actinomycosis in Greek means Actino meaning radiating appearance of sulphur granules and Mykos meaning micotic (fungal) disease which appears to be a misnomer. Israel in1878 recognized the typical sulphar granules which he referred to as macroscopic and microscopic granules of calcium phosphate [3]. Actinomyces species are gram +ve anaerobic or microaerophillic filamentous commensal organisms [4]. There are six species of actionomyces responsible for human disease and they are *Actinomyces israelii*, *Actinomyces naeslundii*, *Actinomyces odontolyticus*, *Actinomyces viscous* and *Actinomyces meyeri* and *Actinomyces serie*. Of these a majority of the human actinomycosis are caused by *A. israelii* [5]. The most common sites of infection are cervico-facial (50%), abdominal (20%), thoracic (15%), rest (15%) pelvic and cutaneous [6], cutaneous actinomycosis commonly manifest as abscess, tissue fibrosis, draining sinuses and classical sulfur granules which are pathognomic. Presentation as pseudocarcinomatous or sarcomatous masses is rare and presents as tumour. Actinomyces are unable to penetrate healthy tissue and in order to become invasive, disruption of epithelial or mucosal barrier is mandatory. Oromaxillofacial trauma is a common preceding event observed which was also seen in present case [6,7]. In cervicofacial actinomycosis chronic granulomatos lesion sometimes mimic a soft tissue tumor or malignant neoplasm [8] as was the situation in present case. Histopathological confirmation is mandatory with visualization of sulfur granules which is seen only in 25% cases and can be missed in small biopsy specimen as it happened in present case with first histopathology report [5] but post excision biopsy was confirmative and hence tissue diagnosis of actinomycosis was made, Pus culture is not a reliable investigation as positive cultures are present in 25–50% cases only [9,10]. The management of a classical case of cutaneous actinomycosis is high dose IV antibiotics for 4–6 weeks followed by oral penicillin or amoxycillin for 6–12 months [4,11,12]. In penicillin resistant patients Clindamycin, Erythromycin, Tetracycline

and Chloromphenicol are other alternatives [4,11,13]. The present patient received antibiotics for short spells of 5–7 days multiple times but due to lack of tissue confirmation longterm antibiotics were not given hence the disease progressed to tumoriform like presentation causing diagnostic dilemma Surgical resection is a useful adjuvant therapy specially in large, disfiguring masses not responding to treatment and excisional biopsy is helpful in establishing histopathological confirmation. In present case excision provided tissue diagnosis and patient was put on long term antibiotics. Surgery alone is not curative [14] hence there was a need for combination of surgical intervention with antibiotics which helps in faster resolution of lesion under cover of antibiotics with cosmetically better results and decrease the rate of recurrence [15]. The present case report is compliant with CARE criteria [16].

4. Conclusion

Tumoriform actinomycosis of the scalp is a rare entity miss diagnosed as neoplasm. High index of suspicion in such lesions not resolving with antibiotics therapy and small biopsy being inconclusive, a diagnosis of actinomycosis of skin should be considered and patient should be put on high dose of antibiotics trial to avoid surgical excision and plastic reconstruction.

Conflict of interest

There is no conflict of interest.

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Ethical approval

Since this is a case report obtaining a formal ethical clearance from IRB of the Institute not necessary.

Consent

The patients' consent for publication is already obtained and not uploaded for privacy reasons.

Author contribution

Dr. Murtaza Akhtar: Concept, Operative management, Literature review, Drafting, Editing & Submission.

Dr. M Zade: Operative Plastic surgery management, Review of Literature, Manuscript review.

Dr. Shahane: Operative Plastic surgery management, Review of Literature, Manuscript review.

Dr. Akshay Bangde: Photography, Patient details, Secretarial help.

Dr. Sagar Soitkar: Pre & Post operative patient care, Pathological reviews, Documentation, Secretarial help.

Guarantor

None.

References

[1] G.F. Mabeza, J. Macfarlane, Pulmonary actinomycosis, Eur. Respir. J. 21 (March (3)) (2003) 545–551.
[2] Y. Atay, A. Alt intas, I. Tuncer, A. Cennet, Ovarian actinomycosis mimicking malignancy, Eur. J. Gynaecol. Oncol. 26 (6) (2005) 663–664.
[3] J. Israel, Neue Beobactungen auf dem Bebiete der Mykosen des Menshen, Virchows Arch. Pathol. Anat. 74 (1878) 15–53.
[4] V. Kalioras, L. Thanos, S. Mylona, et al., Scalp actinomycosis mimicking soft tissue mass, Dentomaxillofac. Radiol. 35 (2006) 117–118.
[5] R.A. Smego Jr., G. Foglia, Actinomycosis, Clin. Infect. Dis. 26 (1998) 1255–1263.
[6] D.F. Bennhoff, Actinomycosis diagnostic and therapeutic considerations and review of 32 cases, Laryngoscope 94 (1984) 1198–1217.
[7] I. Zajc, Z. Orihovac, M. Bagatin, Temporal actinomycosis report of a case, J. Oral Maxillofac. Surg. 57 (1999) 1370–1372.
[8] R. Nagler, M. Peled, D. Laufer, Cervicofacial actinomycosis: a diagnostic challenge, Oral Surg. Oral Med. Oral Pathol. Oral Radiol. Endod. 83 (1997) 652–656.
[9] B. Cocuroccia, E. Gubinelli, M. Fazio, et al., Primary cutaneous actinomycosis of the forehead, J. Eur. Acad. Dermatol. Venereol. 17 (2003) 331–333.
[10] K. Sardana, V. Mendiratta, R.C. Sharma, A suspected case of primary cutaneous actinomycosis on the buttock, J. Dermatol. 28 (2001) 276–278.
[11] M. Manas, Gluteal primary cutaneous actinomycosis, Indian J. Dermatol. 50 (2005) 152–154.
[12] N.G. Warren, Actinomycosis, nocardiosis, and actinomycetoma, Dermatol. Clin. 14 (1996) 85–95.
[13] I. Ermis, M. Topalan, A. Aydin, et al., Actinomycosis of the frontal and parotid regions, Ann. Plast. Surg. 46 (2001) 55–58.
[14] J.A. Franklin, R.K. Kordestani, O. Regeuira, Infect. Dis. Clin. Pract. 200 (16) (2015) 201–203.
[15] G. Gende, D.J. Hasola, B. Dagam, L. Lun, J. Morewaya, Papua New Guinea Med. J. 55 (March–December (1–4)) (2012) 94–97.
[16] CARE Guidelines: http://www.care-statement.org/.