CASE REPORT

Tuberculosis verrucosa cutis in a patient with keloid over ear lobule

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SUMMARY

Tuberculosis (TB) is a global health problem with predominance in resource-poor countries. Extrapulmonary TB constitutes approximately 10% of the cases and can present as different forms depending on the route of entry. Cutaneous TB is a small subset of the extrapulmonary TB. Cutaneous TB can either be of primary origin or secondary origin or it can be a part of a systemic infection. TB verrucosa cutis (TBVC) is the exogenous reinfection of TB in a previously sensitised patient. Routine cultures do not have a high yield in TBVC due to the paucibacillary nature of the organism. Here we are presenting a rare case of a patient who developed in a keloid over the right ear lobule following ear piercing. This has only been presented once in the previous literature and for the first time in the head and neck region.

BACKGROUND

Tuberculosis (TB) is a global health problem with predominance in resource-poor countries. Extrapulmonary TB constitutes approximately 10% of the cases and can present as different forms depending on the route of entry.¹ Cutaneous TB is a small subset of the extrapulmonary TB. Cutaneous TB can either be of primary origin or secondary origin or it can be a part of a systemic infection. The incidence of cutaneous TB is reported to be <2% of all the cases.² TB verrucosa cutis (TBVC) is the exogenous reinfection of TB in a previously sensitised patient. The diagnosis by routine culture and microscopy is difficult due to its paucibacillary nature.¹

We present a case of a 28-year-old woman who had TBVC over a keloid; such a case has only been presented once before in literature.³

CASE PRESENTATION

A 28-year-old woman presented with the history of a right ear lobule keloid for 8 years after she got her ears pierced by a local cosmetic vendor. Initially the right ear lobule used to itch at the site of piercing and then there was a gradual increase in the size of a dark coloured nodular swelling over the area. It was painless, non-reducible, hard and fixed with overlying glistening of the skin. The patient was seen by multiple doctors and was advised for the excision of the swelling. The patient however kept on delaying the treatment due to her fear of the anaesthesia and operation theatre.

In the last 4 months, the swelling had started to grow in size and become tender, and fluctuant. There was no history of fever; however, multiple

antibiotics were prescribed by the local doctors which led to the formation of an abscess in the swelling. Later on, it discharged by itself through a small opening near the lobule. The patient had presented in the clinic after the drainage and was still on broad spectrum antibiotics. Earlier tests performed did not show any conclusive diagnosis including Gram stain and culture which did not yield any organism.

The patient did not have symptoms of any other comorbidities, generalised fever, body aches and weight loss. There was no family history of TB or contact of the same. The patient did not have any allergies or addictions. The patient's psychosocial history was within normal limits.

On examination the right ear lobule was swollen, a superior extension of which was midway to the helix and an inferior extension was adjacent to the lobule. This was however, not well circumscribed but rather had exposed ulcer to it. The overall size was roughly 3.5×2.5 cm, while the ulcer was pink (figure 1). An exposed area of even surface was approximately 1×1.5 cm in size. There was also a small 0.5 cm×0.5 cm nodular swelling adjacent to the large keloid near the helix. Overlying skin was flaking and looked inflamed. Ear nose and throat examination was otherwise within normal limits. There was a BCG scar on the arm of the patient. CT scan was not ordered due to the financial constraints of the patient.

The patient was advised biopsy of the lesion due to clinical suspicion of squamous cell carcinoma. The patient refused the biopsy and consented for the total removal of swelling under general anaesthesia.

Figure 1 Keloid on the right ear of the patient. The ulcer can also be seen in the picture.

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Figure 2 Right ear of the patient after the excision of the keloid.

The preoperative complete blood count, blood urea nitrogen, creatine, electrolytes and chest X-ray were all within normal limits.

The patient underwent a wide local excision of the right ear lobule keloid (figure 2) and the wound was primary closed without any attempt to reconstruct the defect since the disease pathology was not known and frozen section facility was not available at our centre.

The specimen (figure 3) was sent for histopathology and the patient was discharged on the same day with a cover of antibiotics and analgesics.

INVESTIGATIONS

The histopathology of the specimen demonstrated that the skin of ear lobe had chronic granulomatous inflammation composed of multiple granulomas with palisaded histiocytes and multinucleated giant cells surrounded by cuff of lymphocytes (figure 4). There was no involvement of the adjacent skin or cartilage (figure 5). The adjacent fat was however involved (figure 6).

Figure 3 The excised keloid which was sent for histopathology.

Figure 4 Low power magnification $\times 10$; multiple granulomas involving surrounding fat can be seen in the slide.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of the disease included infectious and malignant causes.

TREATMENT

The patient was referred to infectious disease department where she was started on isoniazid (5 mg/kg/day), rifampicin (10 mg/kg/day), pyrazinamide (25 mg/kg/day) and ethambutol (15 mg/kg/day). After the first 2 months of the antituberculosis treatment (ATT) course, pyrazinamide and ethambutol were discontinued. The total ATT therapy was advised for a period of 9 months.

OUTCOME AND FOLLOW-UP

Six months follow-up showed that the wound was well healed and no pus or discharge could be expressed. Another follow-up was planned after the completion of ATT and to decide the reanimation of the ear.

DISCUSSION

WHO estimates that nearly one-third of the world population is at risk of developing TB. Majority of the cases are of pulmonary TB while approximately 10% of the cases occur in extrapulmonary organs. Intact skin or its mucus membrane provides a strong protective barrier against different organisms and any

Figure 5 Low power magnification $\times 10$; ear lobe showing benign cartilage and skin with adnexae.

Figure 6 Medium magnification $\times 20$; granulomatous inflammation involving adjacent fat.

damage to the skin and or the mucus membrane exposes the body to a variety of infections.

Cutaneous disease is rare and occurs in 1–2% of the patients suffering from TB. It can present as scrofuloderma, lupus vulgaris, periorificial TB, miliary TB, tuberculous chancre, tuberculides and TBVC.⁴ TBVC is an exogenous infection occurring in a previous sensitised patient by direct inoculation of the organism through a breach in the skin barrier. The presence of a BCG vaccination scar is also an essential component for the diagnosis.⁵ It is generally believed that there is a female predominance with the extrapulmonary diseases but in case of cutaneous TB, there is a reported male predominance (3:1). It usually follows a trauma to the skin and mostly occurs on fingers and dorsum of the hand which are more prone to trauma. However, in children, knees, ankles and buttocks are more common locations for the disease. In our patient, the organism was most likely introduced in the skin with the piercing of the ear lobules with unhygienic tools.

The skin lesions in TBVC are usually solitary painless verrucous nodule. It is usually violaceous and brown-red. The lesion very rarely exhibits ulceration but it can present with fissures from which pus can be expressed. Our patient presented with a painless ulcerated nodule which discharged pus.

The diagnosis of TBVC is difficult since the cultures are often negative in this condition due to the paucibacillary nature of the organism.^{4–6} The histopathological study in TBVC usually represents marked hyperkeratosis and acanthosis.⁷ Microabscesses can be found in the overlying dermis. Frank tuberculoid granuloma can or cannot be found in the mid-dermis along with necrosis.

TBVC responds well to the usual course of anti-TB medications.⁸ In general, the anti-TB therapy needs to be continued

until 2 months after the complete resolution of the skin lesion. Surgical intervention is routinely not advised. However, it can be employed as an adjuvant to the pharmacological therapy or in the management of an extensive disease.

In the literature review of the TBVC, we have found only one case in which TBVC was found to involve a keloid over the anterior abdomen but we did not come across any similar case in the head and neck region.³ Thus the knowledge of the disease is important and should be considered in patients who have an unresolving verrucous nodule especially in the developing countries.

Learning points

- ▶ Tuberculosis (TB) needs to be considered in an unresolving cutaneous lesion.
- ▶ Necessary steps need to be taken in the developing countries to culminate the unsterile practices.
- ▶ Cutaneous TB is easily treated with standard antituberculosis course; however, longer course duration is required.
- ▶ TB verrucosa cutis is difficult to diagnose since the routine cultures rarely yield the organism.

Contributors MSH was involved in writing and finalising the manuscript. SQA contributed by modifying and finalising the manuscript. MJ was the primary consultant who saw the patient and excised the keloid. MJ also contributed by helping in literature search and writing the manuscript. MRB analysed the histopathology slides and helped in the diagnosis part of the manuscript. MRB also provided the histopathology images.

Competing interests None.

Patient consent Obtained.

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