CASE REPORT

Two rare cases of head and neck tuberculosis

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SUMMARY

Tuberculosis is an infectious disease, which is the leading cause of mortality and morbidity and is still a serious health concern. The fact that extra pulmonary tuberculosis does not have specific examination and radiographic findings and that clinical findings vary depending on the organ in which it is detected cause diagnostic difficulties. The head and neck region is an uncommon site for tuberculosis and tuberculosis can localise in many different places of the head and neck region. In this article, the authors present a case of nasopharyngeal tuberculosis, which clinically mimics nasopharyngeal carcinoma and rare cutaneous tuberculosis of the pinna. A wide knowledge of head and neck tuberculosis, including the disease in the differential diagnosis and carrying out microbiological examinations are necessary for accurate diagnosis.

BACKGROUND

Tuberculosis is an infectious disease, which is the leading cause of mortality and morbidity. In 2013, 6.1 million tuberculosis cases were determined of which 830 000 were the cases of extra pulmonary tuberculosis.¹ The head and neck region is an uncommon site for tuberculosis. Tuberculosis of the head and neck can localise in many regions such as the lymph nodes, larynx, oropharynx, salivary glands, nose and paranasal sinuses, ear and skin.² Nasopharyngeal tuberculosis incidence is 0.1%.³ Cutaneous tuberculosis incidence is 1.5% of extra pulmonary tuberculosis cases.⁴ In this study, we present two rare cases of nasopharyngeal tuberculosis, which clinically mimics nasopharyngeal carcinoma, and cutaneous tuberculosis of the pinna.

CASE PRESENTATION**Case 1**

A 66-year-old woman presented to the outpatient clinic with a swelling in the neck. On examination, localised, painless, solid, mobile, multiple, bilateral lymphadenopathies were detected at the superior cervical region. On endoscopic examination, polypoid mass of right fossa of Rosenmüller was observed (figure 1). There was no history of tuberculosis in the patient's anamnesis and family.

In the nasopharynx and neck MRI, a polypoid mass of the nasopharynx measuring 5×15 mm and lobule-contoured, well-demarcated lymphadenopathies at all bilateral cervical regions were determined (figure 2). On a histopathological examination of the nasopharyngeal biopsy, caseating granulomatous inflammation was determined.

Laboratory analysis results are given in table 1. On microbiological examination of the repeat biopsy, *Mycobacterium tuberculosis* PCR test was

positive and *M. tuberculosis* was grown on Lowenstein-Jensen medium. *M. tuberculosis* was sensitive to streptomycin, isoniazid, ethambutol and rifampicin in the antibiogram. On examination, no other tuberculosis focus was found.

Case 2

A 62-year-old woman with a swelling and redness on the right pinna for 6 months presented to the polyclinic. The smaller lesion began to enlarge after the trauma by the hairdressing scissors. On examination, a soft and reddish-brown coloured erythematous plaque measuring 1.5×0.5 cm was observed at the right auricular antihelix region (figure 3).

Diagnostic excisional biopsy was performed. On histopathological examination of the biopsy, non-caseating granulomas were found on the dermis. Laboratory analysis results are given in table 1. On microbiological examination, acid-resistant bacteria (ARB) were not detected by direct examination of the biopsy. However, *M. tuberculosis* was grown on Lowenstein-Jensen medium. In a similar manner, no tuberculosis focus was found.

TREATMENT**Case 1**

For the first 2 months, 300 mg/day isoniazid, 600 mg/day rifampin and 1.5 g/day ethambutol and for the subsequent 4 months, isoniazid and rifampicin treatment were given to the patient. At the post-treatment sixth month control MRI examination, it was seen that the lesion on the nasopharynx had

Figure 1 A polypoid mass is seen on the right side of the nasopharynx with nasal endoscopy.

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Figure 2 MRI showing a 5×15 mm polypoid mass on the nasopharynx.

disappeared but the lymph nodes did not completely regress. Therefore, it was decided to extend the medical treatment to 9 months. According to the MRI result obtained at the end of the 9-month medical treatment, the lymph nodes completely regressed. On otorhinolaryngological examination of the patient, the examination findings were normal.

Case 2

For the first 2 months, 300 mg/day isoniazid, 600 mg/day rifampin and 1.5 g/day pyrazinamide and for the subsequent 4 months, isoniazid and rifampin treatment were given to the patient.

OUTCOME AND FOLLOW-UP

Case 1

The patient was seen at follow-up. The patient had no symptoms for 1 year after the treatment. In the last examination,

Figure 3 Erythematous plaques on the right pinna.

endoscopic nasopharyngeal examination was normal and the lymph nodes were not palpable.

Case 2

The patient was seen at follow-up. The patient had no symptoms for 18 months after the treatment. In the last examination, her pinna was found to be normal.

DISCUSSION

In differential diagnosis of the nasopharyngeal mass, there exist malignancy, fungal infection, granulomatous and autoimmune diseases.⁵ Nasopharyngeal tuberculosis is uncommon and its diagnosis can be overlooked.^{6–8}

The most frequent symptom of nasopharyngeal tuberculosis is cervical lymphadenopathy. Bilateral cervical lymphadenopathy is a rare symptom seen in 12% of the cases.⁶ In case 1 presented, there were bilateral multiple lymphadenopathies. The most common findings of nasopharyngeal examination are mucosal irregularity, swelling of the nasopharyngeal wall and a mass lesion with a polypoid appearance.⁹ In case 1, there was a polypoid mass of the nasopharynx. In patients presenting with a nasopharyngeal mass and cervical lymphadenopathy, the first thing that comes to mind in the differential diagnosis is nasopharyngeal carcinoma. Therefore, case 1 was first examined with respect to malignancy and the first biopsy was not forwarded for microbiological examination. However, on the determination of caseating granulomas in the histopathological examination, nasopharyngeal biopsy was performed again for microbiological examination.

Even if the radiological methods support diagnosis, the final diagnosis is confirmed with pathological and microbiological examinations.¹⁰ In the histopathological examination, a typical giant-cell granulomatous inflammation and caseating necrosis are seen. For microbiological diagnosis, the direct microscopic examination of Ehrlich-Ziehl-Neelsen staining which shows

Table 1 Laboratory investigation results

	Normal range	Case 1	Case 2
Blood count			
WCC ($\times 10^3/\text{mm}^3$)	3.8–10	9.4	5.72
Haemoglobin, g/dL	11.7–15.5	11.9	12.2
Biochemical measures			
Aspartate aminotransferase, IU/L	5–34	36	23
Alanine aminotransferase, IU/L	0–55	13	28
Bacterial examination			
ARB	Negative	Negative	Negative
PCR	Negative	Positive	Positive
Non-specific culture	Sterile	Sterile	Positive
Lowenstein-Jensen medium	Sterile	Positive	Positive
Immune markers			
C reactive protein, mg/dL	<6	5.07	4.93
Erythrocyte sedimentation rate, mm/h	<20	61	36
PPD	<15	18	24
BCG vaccine status	–	Positive	Positive

ARB, acid-resistant bacteria; PPD, purified protein derivative; WCC, white cell count.

ARB and the growth of ARB on a Lowenstein-Jensen medium is required.

PCR is a fast and sensitive method for the diagnosis of nasopharyngeal tuberculosis.¹¹ The sensitivity of *M. tuberculosis* PCR testing is largely dependent on the bacillary load in the specimens.¹² If the bacillary load is very low, the sensitivity of the *M. tuberculosis* PCR test may be decreased. PCR sensitivity is around 50–72% on detection of mycobacteria.¹³ In case 1, PCR was positive and *M. tuberculosis* was grown on a Lowenstein-Jensen medium. The patient was investigated with respect to miliary tuberculosis. The fact that no other tuberculosis focus was determined indicated that the case was localised nasopharyngeal tuberculosis. In the histopathological examination of case 2, caseating granuloma was not observed while non-caseating granuloma was found. On the other hand, bacteria were grown on the Lowenstein-Jensen medium. These results are conflicting. The gold standard method of diagnosis is the growth of bacteria on the Lowenstein-Jensen medium, therefore, the patient was diagnosed with tuberculosis. In such cases, a misleading histopathological evaluation should be kept in mind.

Nasopharyngeal carcinoma and tuberculosis can be confused because of their similar symptoms and examination findings. Granulomatous response may emerge in the tissues surrounding the nasopharyngeal carcinoma. The biopsies taken off this region can histopathologically suggest granulomatous disease.¹⁴ Although nasopharyngeal tuberculosis is rare, in the differential diagnosis of the cases with nasopharyngeal mass and cervical lymphadenopathy, tuberculosis infection must be considered and in order to avoid overlooking the tuberculosis diagnosis, the biopsy material must be examined microbiologically as well as pathologically.

Cutaneous tuberculosis is rare and can be confused with many cutaneous diseases. It makes up 10% of extrapulmonary tuberculosis cases and 2–3% of all tuberculosis cases.¹⁵ Bacilli may settle in the dermis endogenously, exogenously and by autoinoculation.¹⁵ Inoculation by minor trauma into the intact skin is possible.^{16–17} On the face, it is mostly seen on the cheek and nose.¹⁸ The involvement of the pinna is quite rare.¹⁹

Cutaneous tuberculosis is a serious infection, which primarily affects the high-risk patients with a history of tuberculosis infection, particularly the immunocompromised patients. However, our case was of an immunocompetent patient without a history of tuberculosis. The patient was investigated with respect to miliary tuberculosis. The fact that no other tuberculosis focus was determined indicated that the case was of localised cutane-

ous tuberculosis. The enlargement of a previous lesion after the trauma may suggest its spread by inoculation. However, it was impossible to know if a previous lesion was a tuberculosis lesion. Therefore, infection by scissors cannot be speculated upon.

Consequently, it is obvious that tuberculosis is still a serious health concern. The fact that extra pulmonary tuberculosis does not have specific examination and radiographic findings and that clinical findings vary depending on the organ in which it is detected cause diagnostic difficulties. A wide knowledge of the head and neck tuberculosis, calling to mind the disease in the differential diagnosis and carrying out microbiological examinations are necessary for accurate diagnosis.

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Learning points

- Nasopharyngeal tuberculosis may clinically mimic nasopharyngeal carcinoma.
- The biopsy material should be examined microbiologically as well as pathologically for the differential diagnosis of the cases with a nasopharyngeal mass and cervical lymphadenopathy.
- Cutaneous tuberculosis of the pinna may occur in immunocompetent patients.

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