Primary Submandibular Tuberculosis: An Unusual Cause of Submandibular Salivary Gland Enlargement

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Published online: 20 May 2011
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Abstract A case report of very rare Primary Tuberculosis of Submandibular Gland. This is presented in view of its rarity and highlighting the importance of histopathological examination and Polymerase chain reaction (PCR) to reach the final and exact diagnosis of disease.

Keywords Tuberculosis · Submandibular Gland

Introduction

There are a variety of non-neoplastic disorders affecting the salivary glands. These include chronic sialoadenitis, tuberculosis, sarcoidosis, animal scratch disease, actinomycosis and Sjogren's syndrome (I) and they require differential diagnosis and management.

Primary tuberculosis (TB) is a relatively common cause of granulomatous disease of the salivary glands, though it is relatively rare in the head and neck. Usually TB affects one side, and TB's usual target is the parotid gland. Involvement of the salivary glands is thought to arise from a preceding tooth or tonsil infection. Primary TB of the salivary gland may occur in two forms: as an acute inflammatory lesion mimicking acute suppurative sialoadenitis, or as a chronic tumorous lesion.

Secondary Tuberculosis refers to the involvement of the salivary glands by TB in the setting of systemic TB infection, in particular, pulmonary TB. Unlike the primary form, secondary tuberculosis involves the submandibular and sublingual glands more frequently than the parotid glands [1].

Tuberculosis of the submandibular gland occurs very rarely, since extra pulmonary tuberculosis is now seen relatively more frequently, so this condition should be kept in mind. In India, it is estimated that more than 40% of the adults are infected with tuberculosis bacilli and about 2 million people develop tuberculosis every year and about 500,000 die from it [2]. We reported a case of right submandibular gland enlargement. No sign and symptoms of tuberculosis as weight loss or low grade fever. Patient did not have any other tuberculosis focus. Tuberculosis bacteria can reach the salivary gland in different ways, but the condition that most frequently causes Tubercular infection is the decay of the human organism defensive capacity towards the germ.

Case Report

A 35 years old Himachali lady presented in ENT OPD of IGMCH Shimla HP with a painless gradually increasing swelling in the left submandibular region for about 1 year.

On local examination there was a single lobulated $3 \times 4 \times 3$ cm, non-tender, firm bimanually palpable swelling in the right submandibular region. Routine investigation and X-ray chest were normal, sputum for Acid Fast Bacilli was negative.

On fine needle aspiration cytology (FNAC), the picture was of chronic sialoadenitis. Excision of the right submandibular gland was done and grossly gland was diffusely enlarged lobulated and firm. Specimen sent for histopathological examination and Polymerase chain reaction (PCR) and meanwhile patient was put on antibiotics and analgesics but swelling in the submandibular region persisted Fig. 1.

Histopathological diagnosis was tubercular Sialoadenitis of submandibular gland shown in Fig. 2.

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Fig. 1 Clinical photograph showing persistence of swelling in submandibular region after removal of gland

Fig. 2 Hematoxylin eosin (H&E) original magnification $\times 10$. Photo micrograph showing epithelioid cell granuloma and ductular structure of salivary gland duct

Polymerase chain reaction (PCR) was positive in this patient.

Discussion and Conclusion

Submandibular salivary gland tuberculosis is a rare pathology and does not always have the diagnostic guidelines led by previous Tubercular localizations. Tubercular bacillus can reach the salivary gland in different ways, but the condition that most frequently causes a tubercular infection is the decay of the human organism defensive capacity toward the germ. Advances in antibiotics and the development of preventive medicine have led to a significant decrease in the number of tubercular patients. In the field of head and neck surgery, therefore, tuberculosis is rarely encountered.

In the current indexed medical literature only two cases of tuberculosis sialoadenitis of the submandibular gland were found.

First is the 48 years old female with left submandibular gland tuberculosis reported by Sakurai Tsutomu et al. in 1999 [3] at Japan.

Second case was 15 years old Romanian boy presented with a swelling in the left submandibular region and diagnosis of tubercular sialoadenitis was made with certainty only with the histological examination in January 2007 by Bottini et al. [4].

In our case there was no sign and symptoms of tuberculosis. After the confirmation of tuberculosis of submandibular gland by histopathological examination and PCR, patient was put on antitubercular treatment with four drugs including Rifampicin. 600 mg, Isoniazid 300 mg, pyrazinamide 1500 mg and ethambutol 800 mg for 2 months followed by 2 drugs Isoniazid 300 mg daily and Rifampicin 600 mg daily for 4 months with good response as swelling decreased and later patient course was uneventful.

In every case of suspected Tuberculosis, tissue should be sent for culture and Ziehl-Neelsen staining though very rarely mycobacterium tuberculosis can be grown. On histopathological examination presence of granuloma with central necrosis surrounded by epithelioid cells and Langhans's giant cells, is the hallmark of tuberculosis. PCR the more recently developed test is the most sensitive single technique to date for the demonstration of mycobacterium tuberculosis [5] and it should be carried out in all suspected tubercular patients.

The aim of presenting this paper is to report a rare cause of Chronic Sialoadenitis of submandibular gland. Diagnosis of this kind of disease is extremely difficult and is made with certainty only with the histological examination and PCR as happened in our case.

References

1. Rosen FS, Quinn FB, Quinn FB Jr (2001) Non-neoplastic diseases of the salivary glands. Grand Rounds Presentation, Department of Otolaryngology, UTMB, Galveston, TX
2. Group at risk: report on the tuberculosis epidemic WHO TB/96. World Health Organization, Geneva, 1996
3. Tsutomu Sakurai, Kyoko Nagai, Nobuhiko Furuya (1999) Tuberculosis sialoadenitis of the submandibular gland: a case report. *Kitakanto Med J* 49:177–180
4. Bottini DavideJ, Garelli et al (2007) Primary tuberculosis of submandibular gland. *J Craniofac Surg* 18:218–219
5. Singh KK, Murlidhar M et al (2000) Comparison of in house polymerase chain reaction with conventional techniques for the detection of *Mycobacterium tuberculosis* DNA in Granulomatous lymphadenopathy. *J Clin Pathol* 53(5):355–361