



Primary nasal tuberculosis: A case report

Primarna tuberkuloza nosa

Jasmina Stojanović*, Branislav Belić*, Slobodanka Mitrović†,
Predrag Stanković‡, Stevan Stojanović*, Ljiljana Erdevički*, Ljubica Živić*,
Snežana Arsenijević*

*Clinic of Otorhinolaryngology, †Center of Pathological Anatomy, Clinical Center
Kragujevac, Kragujevac, Serbia; ‡Clinic of Otorhinolaryngology, Clinical Center of
Serbia, Belgrade, Serbia

Abstract

Introduction. During the past two decades, tuberculosis (TBC) both pulmonary and extrapulmonary, has emerged to be a major health problem. Nasal tuberculosis is a specific inflammatory process which is, in most cases, joined by the inflammation of neck lymph nodes. **Case report.** Thirty-year-old man presented with shortness of breath through the nose and periodical headaches. Clinical examination showed signs of chronic rhinitis, with slight granular changes of nasal septal mucosa. Laboratory analyses were within the reference ranges. Nasal and throat swabs for bacteria and fungi were normal. Skin allergy testing to standard inhalatory allergens was positive. Computer rhinomanometry showed increased nasal resistance at medium difficulty level, on the right. Radiography of paranasal sinuses indicated chronic polysinusitis on the right. Anti-allergy therapy was prescribed. The patient came for checkup after a month with subjective deterioration and a neck tumefact on the right. Nasal endoscopy revealed the presence of dark red infiltrates with the 3 mm diameter on nasal septal mucosa, dominantly on the right, with small greyish nodules. This findings indicated a potential specific nasal inflammatory process. In the upper jugulodigastric area, on the left, painless tumefact 3 × 5 cm in size was palpated, it was mobile comparing to supra- and infrastructure, with unaltered skin above. The definite diagnosis was established on the basis of the results of nasal mucosa biopsy. After histopathological diagnosis was obtained, we started with antituberculosis therapy at once. **Conclusion.** Due to actual trends of TBC incidences, otolaryngologist should have in mind nasal TBC, when granulomatose lesions are found in nose.

Key words:
tuberculosis; nasal septum; diagnosis, differential;
antitubercular agents.

Apstrakt

Uvod. Tokom protekle dve decenije tuberkuloza pluća i vanplućna tuberkuloza javljaju se kao veliki zdravstveni problem. Tuberkuloza nosa predstavlja specifični zapaljenski proces koji u velikoj meri prati zapaljenje limfnih čvorova vrata. **Prikaz bolesnika.** Tridesetogodišnji muškarac javio se otorinolaringologu zbog otežanog disanja na nos i povremenih glavobolja. Kliničkim pregledom našli smo znake hroničnog rinitisa sa malim granuliranim promenama na sluznici septuma. Bris nosa i grla na bakterije i gljivice bio je uredan. Kožne alergijske probe na standardne inhalatorne alergene bile su pozitivne. Rinomanometrijski nalaz ukazao je na povišen nosni otpor srednjeteškog stepena desne nosne šupljine. Radiografija paranazalnih šupljina ukazala je na hronični polisinusitis, desno. Ordinirana je antialergijska terapija. Bolesnik se javio na kontrolu nakon mesec dana sa subjektivnim pogoršanjem i sa velikim tumefaktom na vratu desno. Klinička ispitivanja pokazala su na sluznici septuma infiltrirane promera 3 mm, tamnocrvene boje, s malim čvorićima sive boje. Posumnjali smo na specifični zapaljenski proces u nosu. U gornjem jugulodigastričnom regionu uočen je tumefakt promera 3 × 5 cm, pokretan u odnosu na supra- i infrastrukturu, nepromenjene kože iznad, palpatorno bezbolan. Definitivna dijagnoza postavljena je na osnovu kliničkog pregleda, radiološkog nalaza i nalaza biopsije. Nakon dobijanja histopatološke dijagnoze odmah smo počeli sa antituberkuloznom terapijom. **Zaključak.** Otolaringolog bi trebalo da ima na umu tuberkulozu nosa uvek kada se u nosu bolesnika nalaze granulomatozne promene. Na ovo ga obavezuju i tendencije učestalosti ove bolesti.

Ključne reči:
tuberkuloza; nos, septum; dijagnoza, diferencijalna;
antituberkulotici.

Introduction

Upper respiratory tract tuberculosis is uncharacteristic and present in 1.8% of all patients suffering from tuberculosis (TBC)¹. TBC though a rare disease, spread widely at the end of the 20th century, which is explained with the emersion of immunodeficiency diseases and the development of resistant strains of *Mycobacterium tuberculosis*². Since the end of the 20th century there has been a constant and progressive increase of TBC, even in developed countries³. Though the frequency of TBC is growing on the global level, primary nasal tuberculosis is still rare⁴.

Primary nasal tuberculosis is chronic skin and nasal mucosa inflammation, characterised by granulomas (tuberculoma) which necrotise and turn into scars. The cause is *Mycobacterium tuberculosis*. Typical symptoms are: unilateral secretion, periodical bleeding and nasal congestion. Rhinoscopically, the changes are mostly present on the frontal part of inferior nasal concha or the frontal part of septum, in the form of isolated ulcerous red nodules (tuberculoma). Spreading of disease causes perforation of the frontal part of septum. Granulations in the later phase of disease cause scar stenosis. Some patients who suffer from primary nasal tuberculosis can later develop of TBC lungs or larynx².

Diagnosis is not easy to establish since the symptoms and signs of this specific nasal inflammation are quite similar to non-specific nasal inflammation processes⁵. In the sense of differential diagnosis, all other specific nasal diseases as well as malignant processes are possible. A diagnosis is established on the basis of anamnesis, rhinoscopy, nasal endoscopy, biopsy and histopathological verification, as well as additional diagnostic methods (biochemical blood analysis, serology, PPD, isolation of *Mycobacterium tuberculosis* complex, radiological investigation). The definite diagnosis is established by biopsy and histopathological verification of Langerhans cells⁵. The treatment of nasal TBC should follow general guidelines for tuberculosis treatment. The choice of drugs must comply with their availability and local emersion of resistant strains, thus, at least two types of medications are used for the treatment but often three or more types⁵.

Case report

A 30-year-old man, presented with shortness of breath through the nose and periodical headaches for about a month. Anamnesis contained no data on nasal bleeding, smell disorder, increased body temperature, coughing, fatigue or weight loss.

Rhinoscopic examination confirmed the picture of chronic rhinitis with hypertrophic mucosa and slight granular changes on nasal septal mucosa. Nasopharynx, oropharynx and larynx did not have visible pathologic changes. Nasal and throat swabs did not isolate pathogenic germs. Allergy testing to standard inhalatory allergens was positive (house mites, house dust and tobacco). Computer rhinomanometry indicated increased nasal resistance of medium difficulty level of the right nasal cavity, whereas the result for the left side was normal. Total nasal resistance was increased in mild level. Rhinomanometric testing after vasoconstriction confirmed mucosal type of nasal obstruc-

tion. Radiography of paranasal cavities showed the signs of chronic sinusitis. Due to negative bacteriological result and positive allergy "prick" test, the patient was prescribed intranasal corticosteroids and peroral antihistamines, along with advice to rinse nasal cavities every day using saline solution. The patient came for the checkup after a month, without subjective improvement, with a tumefact in the upper jugulodigastric neck area, on the left.

Endoscopic nasal examination on nasal septal mucosa, dominantly rightwards, in its posterior third, revealed the presence of dark red infiltrates with the diameter of about 3 mm, with tiny white-greyish nodules at the top. In the upper jugulodigastric neck area, a 3 × 5 cm diameter tumefact was noticed; it was mobile comparing it to supra and infrastructures, with unaltered skin above and palpatory painless. Ultrasound neck examination showed that the results for thyroid and both of the submandibular salivary glands were normal; however, on both sides of the neck, more to the left, at the level of submandibular, sublingual and upper cervical area, increased lymph nodes of the changed morphology were identified (some of them had hyperechogenic center and almost all of them had the thickened and hyperechogenic cortex with pronounced hilar vascularisation). Lymph nodes on the right had the diameter of 12–28 mm, and on the left 14–29 mm. Due to our suspicions for a specific inflammatory process, we carried out the biopsy of altered nasal septal mucosa and sent it for histopathologic (HP) examination. The HP result showed that it was tuberculosis (Figures 1 and 2). Basic laboratory analyses were within the reference values, erythrocyte sedimentation was 10/20 mm/h, C reactive protein (CRP) – 7 mg/dL. Lung radiography did not show any active pathological changes in lung parenchyma. Computed tomography (CT) of paranasal cavities (coronal and axial intersections) revealed granulomatous lesion in the right nasal cavity at the level of the middle third of the septum (Figure 3).

The definite diagnosis was established by combining clinical picture, clinical examination, nasal endoscopy results, the biopsy of pathologically modified nasal septal mucosa, HP analysis, as well as additional diagnostics (ultrasound of the neck, CT of nasal cavum and paranasal cavities).

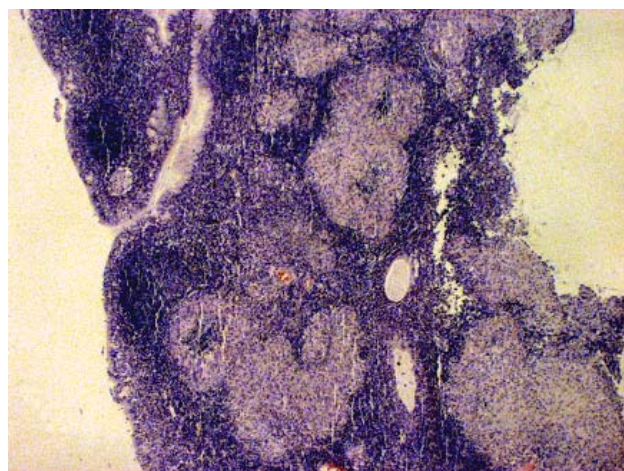


Fig. 1 – Endonasal mucosa with numerous central granulomas which show caseous necrosis (HE, × 100).

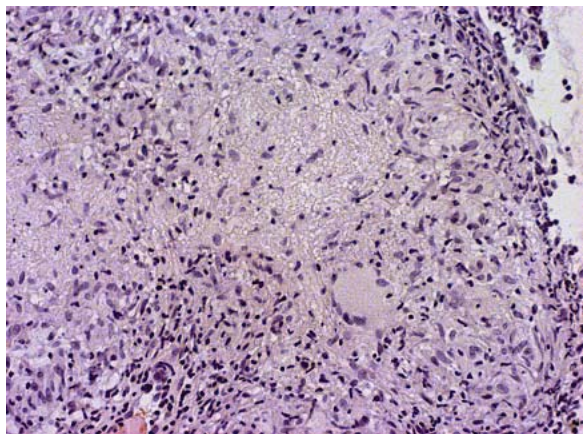


Fig. 2 – Tuberculous granuloma with Langhans' multinucleate giant cells (HE, × 100).



Fig. 3 – Computed tomography of paranasal sinuses (coronal cut): granulomatous lesion of the right nasal cavity at the level of the middle third of septum.

As a therapy, antituberculosis drugs were prescribed. At first checkup, after a month, the patient felt subjectively better, the lump on the neck was in regression, and so were the changes on septal mucosa.

Discussion

Primary nasal TBC is quite a rare disease. Nasal TBC is usually secondary in nature when the process spreads from lungs or larynx. Nasal tuberculosis signs and symptoms can imitate the signs of chronic rhinitis. The most common symptoms are: shortness of breath through the nose, nasal secretion and recidivant epistaxis. Purohit and Gupta⁶ state that nasal tuberculosis is a specific inflammatory process usually followed by tuberculous inflammations of neck lymph nodes (scrofula), as seen in the presented patient.

The first suspicion for a specific inflammatory process appeared at the patient's checkup. Until then, the patient was treated for allergic rhinitis. However, when endoscopic examination of his nose revealed infiltrates on nasal septal mucosa and inferior nasal conchae, as well as a tumefact on the left side of his neck, we suspected the specific inflammatory process.

Kim et al.⁷ demonstrated eight cases of nasal tuberculosis and six of these patients had primary nasal tuberculosis. The average age of patients was about 30 years, and the localization of tuberculous infiltrates was, as it was in our case, the

nasal septum⁷. Varshney et al.⁸ demonstrated three cases of nasal TBC and all three patients were male, the average age of 35 years old. Sithinamsuwan et al.⁹ demonstrated the case of nasopharynx TBC with the presence of diplopia, and the definite diagnosis was established by biopsy and histopathological verification of the tissue modified by tumor on the roof of epipharynx⁹. Johnson et al.¹⁰ demonstrated the case of nasopharyngeal tuberculosis in a 22-year-old man who presented with recidivant epistaxis, nasal obstruction and a neck lump on both sides. Dixit and Dave¹¹ reported the case of primary nasal tuberculosis in a ten-year-old girl who came to an otolaryngologist because of recidivant epistaxis and nasal obstruction. The definite diagnosis was established by the nasal endoscopy and multiple biopsies of granulomatous septum lesions.

Nasal TBC treatment should follow general guidelines for tuberculosis treatment. The choice of drugs must comply with the availability and local emersion of resistant strains; thus, at least two types of medications are used for the treatment, often three or more types⁵. According to the protocol, nasal TBC treatment lasts for at least 6 months continually.

Conclusion

Due to actual trends of TBC incidences, otolaryngologist should have in mind nasal TBC, when granulomatous lesions are found in nose.

REFERENCES

1. Prasad BK, Kejrival GS, Sabu SN. Case report: Nasopharyngeal tuberculosis. *Indian J Radiol Imaging* 2008; 18(1): 63–5.
2. Goguen LA, Karmody CS. Nasal tuberculosis. *Otolaryngol Head Neck Surg* 1995; 113(1): 131–5.
3. Johnson IJ, Soames JV, Marshall HF. Nasal tuberculosis--an increasing problem? *J Laryngol Otol* 1995; 109(4): 326–7.
4. Lai TY, Liu PJ, Chan LP. Primary nasal tuberculosis presenting with septal perforation. *J Formos Med Assoc* 2007; 106(11): 953–5.
5. Nayar RC, Al Kaabi J, Ghorpade K. Primary nasal tuberculosis: a case report. *Ear Nose Throat J* 2004; 83(3): 188–91.
6. Purohit SD, Gupta RC. Primary tuberculosis of nose. *Indian J Chest Dis Allied Sci* 1997; 39(1): 63–4.
7. Kim YM, Kim AY, Park YH, Kim DH, Rha KS. Eight cases of nasal tuberculosis. *Otolaryngol Head Neck Surg* 2007; 137(3): 500–4.
8. Varshney S, Gupta P, Bist SS, Singh RK, Gupta N. Lupus vulgaris of nose. *Head Neck Surg Microbiol* 2009; 11(2): 91–3.
9. Sithinamsuwan P, Sakulsangprapha A, Chinvarun Y. Nasopharyngeal tuberculosis: a case report presenting with diplopia. *J Med Assoc Thai* 2005; 88(10): 1442–6.
10. Johnson IJ, Soames JV, Marshall HF. Nasal tuberculosis--an increasing problem? *J Laryngol Otol* 1995; 109(4): 326–7.
11. Dixit R, Dave L. Primary nasal tuberculosis. *Lung India* 2008; 25(2): 102–3.

Received on November 28, 2011.

Revised on February 29, 2012.

Accepted on May 15, 2012.