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Case Series

A Case Series of Tertiary Nasal Syphilis: Clinical Profile and Outcomes

S Prudhvi Balaji[1], M Swaroop Dev[2], K M Vidya Shree[3], C M L Ranjitha Shree[3], Vipanchi Reddy[4]

[1]3rd Year Post Graduate, Department of Otorhinolaryngology, Sri Siddhartha Medical College (Constituent College of SAHE University), Tumkur, Karnataka, India, [2]Professor and Unit Chief, Department of Otorhinolaryngology, Sri Siddhartha Medical College (Constituent College of SAHE University), Tumkur, Karnataka, India, [3]Assistant Professor, Department of Otorhinolaryngology, Sri Siddhartha Medical College (Constituent College of SAHE University), Tumkur, Karnataka, India, [4]2nd Year Post Graduate, Department of Otorhinolaryngology, Sri Siddhartha Medical College (Constituent College of SAHE University), Tumkur, Karnataka, India

Abstract

Background: Tertiary syphilis with nasal involvement is extremely rare in the antibiotic era and often poses a diagnostic challenge due to its varied clinical presentation and overlap with other granulomatous diseases of the nose.

Objective: The objective of the study was to describe the clinical features, diagnostic work-up, management, and outcomes of 10 patients with tertiary nasal syphilis.

Materials and Methods: A retrospective case series of 10 patients diagnosed with tertiary nasal syphilis at a tertiary care otorhinolaryngology center over a defined study period was conducted. Clinical presentation, endoscopic findings, radiological features, serological tests, treatment, and follow-up outcomes were analyzed.

Results: The mean age was 41.6 years (range 28–62 years). Nasal crusting and epistaxis were the most common presenting symptoms (100%), followed by septal perforation (80%) and saddle nose deformity (50%). venereal disease research laboratory was negative in six patients, while treponemal tests (*Treponema pallidum* particle agglutination/fluorescent treponemal antibody absorption) were positive in all cases. All patients were treated with intramuscular benzathine penicillin with good clinical response. Residual deformity persisted in five patients, who were advised reconstructive surgery.

Conclusion: Tertiary nasal syphilis, though rare, should be considered in patients with destructive midline nasal lesions. Treponemal tests play a crucial role in diagnosis, especially when non-treponemal tests are negative. Early diagnosis and appropriate antibiotic therapy can halt disease progression and reduce morbidity.

Key words: Case series, Nasal syphilis, Saddle nose deformity, Septal perforation, Tertiary syphilis

INTRODUCTION

Syphilis is one of the oldest systemic disease having an inexpensive treatment and can be completely cured. It is caused by spirochaete *Treponema pallidum* (TP) and transmitted by sexual transmission. The disease is predominantly seen in men who have sex with men with a high rate of partner change.[1] The exact prevalence of syphilis in India is unknown due to under reporting at sexually transmitted disease clinics, symptomatic management at small centers, and missing many asymptomatic cases/partners that do not report for appropriate treatment.[2] Despite the antibiotic era, comeback in cases of syphilis has revived interest in both developing and developed countries. This is because syphilis still presents several diagnostic challenges.[1]

Tertiary syphilis is a rare entity in the present antibiotic era. It may manifest in the nose as superficial or deep ulcerations and granuloma. Saddle nose deformity that is characteristic of syphilis results from the destruction of the bony framework of the nose and the shrinking of fibroid tissue. The diagnosis of syphilis usually reached after carefully ruling out all other clinical prospects and confirming treponemal infection by laboratory analysis. Syphilis of the nose is regarded to be very rare by all authorities.[3]

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Corresponding Author: Dr. K M Vidya Shree, Sri Siddhartha Medical College, Tumkur, Karnataka, India.

MATERIALS AND METHODS

This retrospective case series included 10 patients diagnosed with tertiary nasal syphilis in the Department of Otorhinolaryngology of a tertiary care hospital for a period of 2 years and 2 months.

Inclusion Criteria

- Patients with clinical evidence of destructive nasal lesions
- Positive treponemal serology (*T. pallidum* particle agglutination [TPHA] and/or fluorescent treponemal antibody absorption [FTA-ABS])
- Features consistent with tertiary syphilis.

Exclusion Criteria

- Patients with congenital syphilis
- Incomplete medical records.

Data Collection

Clinical details, including age, sex, presenting symptoms, nasal endoscopy findings, laboratory investigations, imaging studies, treatment details, and follow-up outcomes, were recorded.

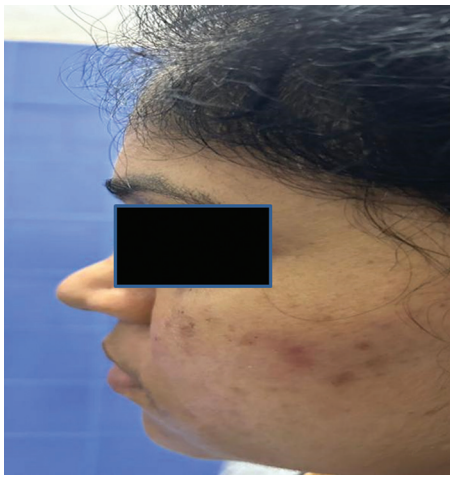
RESULTS

Demographic Profile

- Number of patients: 10
- Gender: 6 males, 4 females
- Age range: 28–62 years (mean 41.6 years).

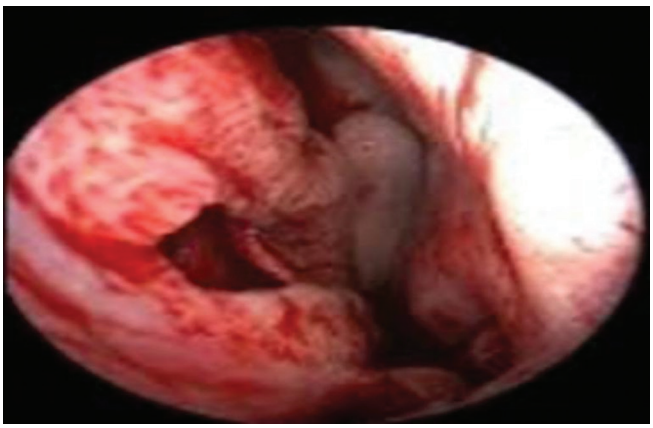
Clinical Presentation

Symptom/Sign	Number of patients (*n*=10) (%)
Nasal crusting	10 (100)
Epistaxis	10 (100)
Nasal obstruction	7 (70)
Septal perforation	8 (80)
Saddle nose deformity	5 (50)
External nasal ulceration	3 (30)



Endoscopic and Radiological Findings

Diagnostic nasal endoscopy revealed unhealthy mucosa with extensive crusting in all patients. Septal perforation involving the cartilaginous–bony junction was the most common finding. Contrast-enhanced computed tomography (CECT) of paranasal sinuses showed septal erosion and irregular mucosal thickening without significant sinus involvement.



Laboratory Investigations

- Venereal disease research laboratory (VDRL) positive: 4 patients
- VDRL negative: 6 patients
- TPHA/FTA-ABS positive: 10 patients
- HIV serology: Negative in all patients.

Nasal biopsy was inconclusive in seven cases, showing only chronic inflammatory changes.

Treatment and Follow-up

All patients received intramuscular benzathine penicillin 2.4 million units weekly for 3 weeks. Adjunctive local nasal care with saline and alkaline douching was advised.

On follow-up (6 weeks–6 months): Resolution of crusting and epistaxis in all patients – No progression of septal destruction - Residual saddle nose deformity in 5 patients.

DISCUSSION

Syphilis is a systemic disease caused by the spirochete TP. It occurs exclusively in humans; there is no animal reservoir. Approximately 90% of all syphilis is sexually transmitted during oral, anal, or vaginal intercourse. Transmission occurs through direct contact with infectious exudates from moist skin lesions or mucus membranes of infected persons during sexual contact.[4-6] The disease is classified as congenital or acquired. Congenital syphilis is divided into early (first 2 years) and late, including stigmata of congenital syphilis. Acquired syphilis is divided into early

and late.[7,8] All stages of syphilis may manifest with head and neck findings.[9] Tertiary syphilis shows most marked manifestations in the nose, causing superficial and deep ulcerations, and gumma. Gummatous deposit may occur in any portion of the nose. The most frequent site is the septum and floor of the cavity. It commences most frequently in the submucous tissues, extending both to the surface and the deeper tissues with subsequent degeneration, resulting in superficial or deep ulcerations. The periosteum or perichondrium becomes involved, and later, there is necrosis of the bony structures. The septum is a frequent site of pathology, especially the junction of the cartilaginous with the bony septum, resulting in perforation. Where the bony septum is involved, the existence of syphilis is unquestionable. The deformity resulting from the destruction of bony framework of nose and shrinking of fibroid tissue produces the typical saddle nose, which is characteristic of syphilis.[10] Certain manifestations, such as interstitial keratitis and Clutton's joints, are due to hypersensitivity and not due to the direct effects of the organism. In our patient, the septal perforation was due to chronic necrosis by the localized gumma.[11] Co-infection of syphilis and HIV is common, as both are sexually transmitted infections. Syphilis can enhance the acquisition of HIV. Syphilis in the HIV-infected individual can be highly aggressive. Patients can progress from primary to tertiary syphilis over several years, as opposed to several decades in individuals not infected with HIV. They are at increased risk to manifest a more protracted and malignant course, which includes more constitutional symptoms, greater organ involvement, atypical and florid skin rashes, multiple genital ulcers, uveitis, concomitant chancre during the second stage, and a significant predisposition to develop symptomatic neurosyphilis.[10]

Patients suspected of having syphilis are usually screened with non-treponemal tests, including the VDRL test.[12] Although the chancre may develop within one week of exposure, immunoglobulin M antibodies take 2–3 weeks to be detectable, during which time patients may have negative non-treponemal tests.[13] Patients with a positive VDRL test should undergo specific treponemal testing, such as the FTA-ABS assay or the TPHA test to confirm infection with TP. Persons with confirmed syphilis should always be tested for HIV.

The treatment plan for syphilis remains relatively unchanged in recent years and continues to vary with the stage of infection. Primary, secondary, and early latent syphilis can be treated with a single intramuscular dose of 2.4 million units of benzathine penicillin. A longer treatment course of 2.4 million units of intramuscular Benzathine penicillin every week for 3 weeks is recommended for late latent syphilis, for tertiary syphilis, or if infection duration is unknown. Neurosyphilis requires 3–4 million units of intravenous aqueous crystalline penicillin G every 4 hours for 10–14 days.[14] Local treatment consists of clearance of crusts and regular cleansing of the nasal passages by alkaline douches 1–3 times a day. Yellow mercury oxide ointment may be applied locally. The purpose of local treatment is to remove the discharge and crusts, kill spirochetes, promote wound healing and epithelial growth, prevent secondary infection. Gumma responds rapidly to general antisyphilitic treatment, but atrophic rhinitis and deformity may persist after the disease is cured, and this may need further reconstructive surgery.[15]

A key observation in this series was the high rate of negative VDRL tests, emphasizing that reliance solely on non-treponemal tests may lead to missed diagnoses. Treponemal tests remain positive for life and are crucial in suspected late syphilis. Histopathology is often nonspecific, further highlighting the importance of serology and clinical correlation.

Prompt antibiotic therapy results in rapid control of active disease, though structural deformities may persist and require reconstructive intervention. Regular follow-up is essential to monitor response and prevent complications.

CONCLUSION

Tertiary syphilis is rarely seen these days, but collapsed nasal bridge with destruction of nasal septum and turbinates without clear history of genital sore or lesions of secondary syphilis in the past should evoke a high index of suspicion. Diagnosis can be made by characteristic organ involvement, histopathological picture, TPHA test being positive in spite of VDRL being negative, and by response to adequate antibiotic therapy. It is very important to rule out other possible disease pathologies such as tuberculosis, lupus vulgaris, sarcoidosis, yaws, atrophic rhinitis, leprosy, scleroma, chronic glanders, leishmaniasis, and benign or malignant neoplasm.

ETHICAL APPROVAL

Not required.

SOURCE OF SUPPORT

Nil.

CONFLICTS OF INTEREST

None declared.

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