International Journal of Otorhinolaryngology and Head and Neck Surgery
Srinivas CV et al. Int J Otorhinolaryngol Head Neck Surg. 2025 Apr;11(2):173-175
http://www.ijorl.com
pISSN 2454-5929 | eISSN 2454-5937

DOI: https://dx.doi.org/10.18203/issn.2454-5929.ijohns20250798

Case Report

A rare case of Hansen's disease with thyroid disorder

C. V. Srinivas, Divya*

Department of ENT, Dr. B. R. Ambedkar Medical College and Hospital, Gandhi Nagar, Kadugondanahalli, Bangalore, Karnataka, India

Received: 16 October 2024
Revised: 09 March 2025
Accepted: 12 March 2025

***Correspondence:**
Dr. Divya,
E-mail: guddydivu@gmail.com

ABSTRACT

A 29-year-old female presented with complain of swelling in front of neck since 1year. Patient had multiple skin-coloured raised lesions. On examination-solitary swelling in the midline of neck. After necessary routine investigations, surgery was withheld has patient was diagnosed with lepromatous leprosy and was started on MDT (multidrug therapy). After 6months of treatment, patient underwent left hemithyroidectomy. Endocrine disorders are often silent unreported and remain undiagnosed in patients of leprosy because of its late occurrence in the course. Even though it's a rare presentation leprosy patient can present with endocrine disorders and such patients should be evaluated thoroughly in the initial stages so that the complications can be prevented.

Keywords: Leprosy, Multidrug therapy, Hemithyroidectomy, Endocrine disorders

INTRODUCTION

Leprosy is a chronic, granulomatous disease prevalent in India and it is caused by mycobacterium leprae and the classical site of involvement are skin and peripheral nerve.[1] Though the disease manifest predominantly in peripherally visible organs, it involves internal organs. Endocrine disorders are often silent unreported and remain undiagnosed in patients of leprosy because of its late occurrence in the course. Endocrine disorders in leprosy results from the direct involvement of the tissue or due to alteration in immune response, there is a possibility that hypothyroidism developed as a result of leprosy triggered autoimmune thyroiditis mediated by inflammatory cytokines and local granulomatous reaction.[2]

CASE REPORT

A 29-year-old female named Anitha presented to ENT OPD, complaining of swelling in front of neck since 1year. Swelling was painless and non-progressive in size since she noticed it. There is no history of throat pain, pain or difficulty in swallowing. No history of hoarseness of voice or voice change or noisy breathing, loss of appetite, weight loss.

Patient complained of loss of sensation over left foot since, 3 year and skin coloured raised lesion over body since, 1.5 years. patient was unable to perceive hot water while showering and minor trauma to left foot which was initially involving small area, later extending to lateral aspect of left foot. Patient noticed multiple skin coloured raised lesion which was initially involving left foot gradually progressed to both lower limbs up to knees and later to both upper limbs, later progressed to involve both upper limbs and face. Lesions were progressive in size and number.

On examination- Solitary swelling in the midline of neck of size 4×5 cm extending 4cm below hyoid bone, 1cm above suprasternal notch below, left side just over the anterior border of sternocleidomastoid muscle involving just isthmus of thyroid, smooth surface, distinct margins soft to firm in consistency. Swelling was mobile in both horizontal and vertical plane. There were no audible bruit

Multiple erythematous skin-coloured nodules of varying sizes over the lower limbs up to knees, dorsum of hands, extensor aspect of forearms and arms bilaterally. Few skin coloured papules over thighs bilaterally and face and cystic nodule over medial canthus of left eye, solitary erosion 2×2 cm over the right nasal septum but hair, nails and external genitalia was normal.

Figure 1 (A-D): Papules and nodules seen over bilateral hands and legs with erosion in the nasal cavity (features of leprosy).

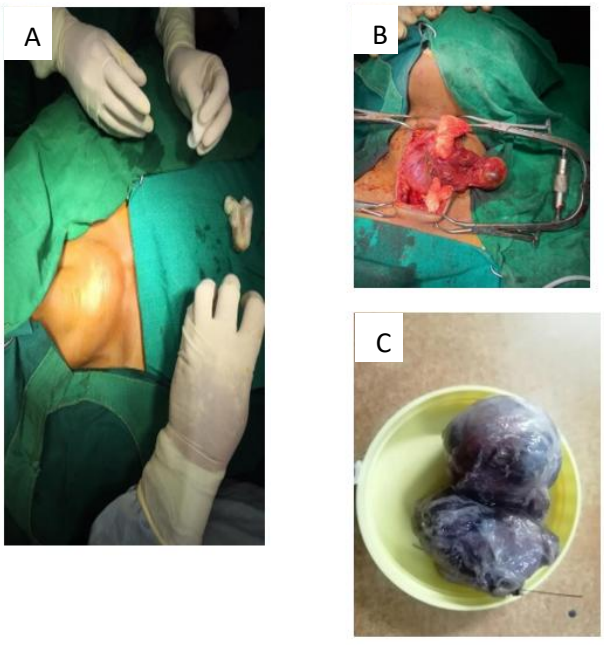

Figure 2 (A-C): Intraoperative and postoperative left hemithyroidectomy.

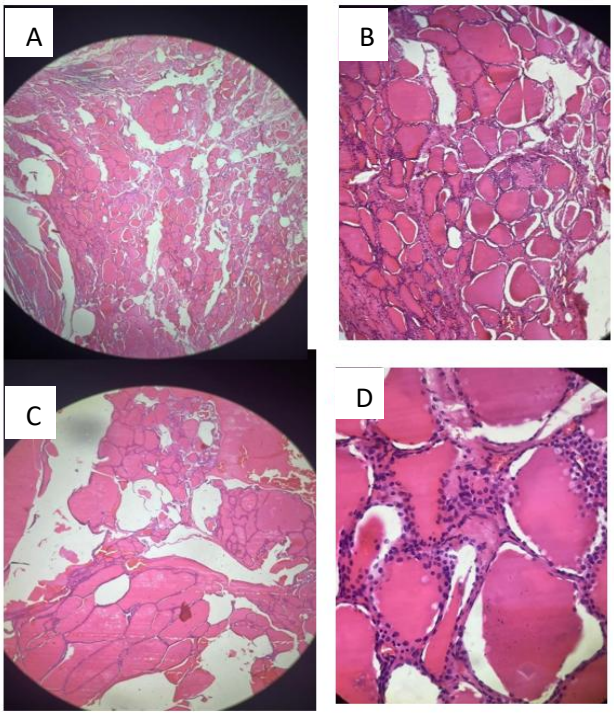

Figure 2 (A-D): HPE showing thyroid tissue colloid.

There was reduced sensation of temperature and pain over lateral aspect of left foot and other sensation was intact 2+ thickening of ulnar nerves bilaterally, radial cutaneous nerves bilaterally, lateral popliteal nerve bilaterally and posterior tibial nerve bilaterally. Nerves were non tender, firm in consistency with no nodularity. Decreased sensation of temperature and pain over lateral aspect of left foot. Other sensations were intact. After necessary routine investigations she was planned for left hemithyroidectomy but was withheld and was diagnosed as lepromatous leprosy. Started MDT (multidrug therapy) which includes. Rifampicin 600 mg once a month supervised dapsone 100 mg daily self-administered Clofazimine 300 mg once a month supervised and 50 mg daily self- administered. After 6 months of treatment routine investigations was done and patient was planned for left hemithyroidectomy Under general anaesthesia, horizontal incision was given 2 finger breath above the suprasternal notch. Skin separated from underlying fascia superior and inferior flaps raised, vertical midline incision was taken to separate deep cervical fascia. All strap muscles were separated. Left thyroid lobe mobilized, superior pedicle identified, ligated and separated. Left recurrent laryngeal nerve identified and preserved. Parathyroid was preserved. Left thyroid lobe along with isthmus was removed.

DISCUSSION

The thyroid (Greek thyreos, shield, plus eidos, form) consists of two lobes connected by an isthmus. It is located anterior to the trachea between the cricoid cartilage and the suprasternal notch. The normal thyroid is 12–20 g in size, highly vascular, and soft in

consistency.[3] The thyroid gland develops from the floor of the primitive pharynx during the third week of gestation. The developing gland migrates along the thyroglossal duct to reach its final location in the neck.[4] Primary hypothyroidism is defined as low FT4 (normal, 0.8– 2.1 ng/ml) with elevated TSH (normal, 0.5–6.5 µIU/ml) and subclinical hypothyroidism as normal FT4 with raised TSH. The sick euthyroid syndrome was defined by the presence of low T3 and T4 along with normal TSH levels. Primary hyperthyroidism is defined as elevated FT4 with low TSH and subclinical hyperthyroidism as normal FT4 with suppressed TSH.[2]

Leprosy is an infectious disease whose clinical manifestation is highly influenced by the immune response of the patient. The host response to leprosy bacillus determines the subsequent clinical features was pointed out in 1954 when Mitsuda first showed that intradermal injection of killed M. leprae led to a skin reaction 3–4 weeks later with erythema and swelling at the site. Such reaction was observed only in the patients with tuberculoid and not those with lepromatous leprosy (LL), indicating that the inflammatory response of the subject to the bacillus was dependent on the host immune response, transmission through air borne.[5,6]

Ridley-Jopling classification of leprosy in 1962, described five overlapping categories of leprosy tuberculoid (TT), borderline tuberculoid (BT), mid-borderline (BB), borderline lepromatous (BL), and lepromatous (LL). An early clinical manifestation is recognized and referred to as indeterminate leprosy (IL). Immunologic resistance is strong at the tuberculoid end of the spectrum, gradually diminishes through the borderline spectrum, and is weakest in lepromatous leprosy.[7] The LL and TT types of leprosy are relatively stable, with little or no change in clinical disease expression over time, while the BL, BB, and BT types are unstable both clinically and immunologically.[7]

Further distinction indicates that subpolar types of TT and LL leprosy (TTs and LLs) are less stable than polar types (TTp and LLp).[7] In one of the study eleven out of 40 patients showed results consistent with an endocrine disorder, including subclinical hypothyroidism (n=4), sick euthyroid syndrome (n=3), growth hormone (GH) deficiency (n=2), primary hypogonadism (n=2) and secondary hypogonadism in one patient. The prevalence of subclinical hypothyroidism was seen in 10-20 % of the patients with leprosy and are associated with autoimmune thyroid disorder.[2] Another study where thyroid function tests were carried out in 43 cases of leprosy. The study subjects included cases of tuberculoid, borderline and lepromatous leprosy and those with lepra reaction. The parameters studied included serum cholesterol, protein bound Iodine, serum T3 level and serum T4 levels. The levels of serum cholesterol and protein bound Iodine were normal in all the four groups of leprosy patients. However, the mean serum T3 and T4 were low in all the four groups. The difference in the levels of serum T3 was statistically significant only in the lepra reaction group. The levels of T4 were statistically significantly decreased in borderline leprosy, lepromatous leprosy and in lepra reaction.[8]

CONCLUSION

Leprosy can present with endocrine disorders such as Thyroid disorders even though it's rare and such patients should be evaluated thoroughly in the initial stages so that the complications can be prevented. Further studies with larger sample size and multi-center studies are required to confirm correlation between Leprosy and Endocrine disorders.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Shin H, Oh Y. Leprosy and leprostigma: A review from the past through COVID-19. Front in Trop Dis. 2022;3:827102.
2. Singh RK, Bhasin R, Bisht YS, Kumar KV. Endocrine dysfunction in patients of leprosy. Indian J Endocrinol Metab. 2015;19(3):369-72.
3. Loscalzo J, Fauci A, Kasper D, Hauser S, Longo D, Jameson J (Eds.), Harrison's Principles of Internal Medicine. McGraw-Hill Education. 2022.
4. Rosen RD, Sapra A. Embryology, Thyroid. In: StatPearls Treasure Island (FL): StatPearls Publishing. 2025. Available at: https://www.ncbi.nlm.nih.gov. Accessed on 28 December 2024.
5. Nath I, Saini C, Valluri L. Immunology of leprosy and diagnostic challenges. Clinics in Dermatol. 2015;33(1):90-8.
6. Walker SL, Lockwood DNJ. The clinical and immunological features of leprosy. British Medical Bulletin. 2006;78(1):103–21.
7. Alrehaili J. Leprosy classification, clinical features, epidemiology, and host immunological responses: Failure of Eradication in 2023. Cureus. 2023;15(9):44767.
8. Garg R, Agarwal JK, Singh G, Bajpai HS. Thyroid function in leprosy. Indian J Lepr. 1990;62(2):215-8.

Cite this article as: Srinivas CV, Divya. A rare case of Hansen's disease with thyroid disorder. Int J Otorhinolaryngol Head Neck Surg 2025;11:173-5.