*The Journal of Laryngology and Otology*
April 1988. Vol. **102.** pp. 387–388

# Scrofula revisited

Y. P. Talmi, M.D., Y. Finkelstein, M.D., Y. Shem Tov, M.D., Y. Zohar, M.D. and N. Laurian, M.D. (Petah Tikvah, Israel).

**Abstract**

Mycobacterial cervical lymphadenitis, or scrofula, is a disease dating back thousands of years.

In spite of modern treatment and public health measures, scrofula persists but is infrequently seen.

Five patients with cervical tuberculous lymphadenitis as a sole presentation have been seen in our department in the last 10 years.

The clinical presentation and current methods of diagnosis and treatment are described.

A short historical review is given.

## Introduction

Tuberculous mycobacterial lymphadenitis, or scrofula, has afflicted man for over 3,000 years. Scrofula takes its name from the Latin for 'glandular swelling' and from the French for 'full necked sow'. Hippocrates described scrofulous tumours and Albucsis supported excision as the treatment for 'tubercular glands' in his Practica (Brothwell and Sandinson, 1967).

The disease became known as the 'King's Evil' during Medieval times due to the practice of attempting a cure by the royal touch. This 'laying on of hands' was closely allied to the doctrine of the King's divine rights and special days were allocated for 'Royal touching' (Cantrell *et al.*, 1975; Levin Epstein and Lucente, 1982). In France the practice continued into the 19th century. Digitalis was used as a treatment in the 17th century. Jean Lugol's (1786–1851) research on scrofula led him to treat it with the iodine solution which bears his name (Cantrell *et al.*, 1975).

In the 1800's Virchow studied the microscopic structure of the tubercule and Bollinger described Mycobacterium bovis.

In 1882 Robert Koch discovered the tubercle bacillus and by the end of the 19th century the avian, reptilian, piscine and saprophytic varieties of mycobacteria had been reported (Appling and Miller, 1981).

Some workers see scrofula as a part of a generalized process and not merely localized to the area of nodal involvement (Kent, 1967; Cantrell *et al.*, 1975; Appling and Miller, 1981). Others tend to see it as a localized lesion in a higher percentage of the cases (Huhti *et al.*, 1975; Levin Epstein and Lucente, 1982; Stanley *et al.*, 1983).

Two–five per cent involvement of the cervical lymph nodes in tuberculous patients has been reported in different series (Kent, 1967). Tuberculosis was found in 14 to 27.5 per cent of cervical nodal biopsies (Levin Epstein and Lucente, 1982).

## Clinical material

Five patients in whom scrofula was the sole presentation and in whom no other evidence of tuberculosis was found were seen in the years 1975–1985.

The patients were all females, with ages ranging from 17 to 85 years. Not including an 85-year-old patient, the mean age was 29 years.

Patients underwent an evaluation that included a thorough history, physical examination, complete hemogram, ESR, urinalysis, chest X-ray and PPD.

The patients and their clinical findings are shown in Table I. Patients Nos. 1 and 2 were mother and daughter.

Patient No. 4 underwent surgery on the right submandibular gland for recurrent swelling. In a floor-of-the-mouth X-ray, a stone was seen. During the surgery, an enlarged lymph node adjacent to the submandibular gland was excised and sent for histologic examination.

After the evaluation that yielded no conclusive results, all the patients except No. 3, underwent an excisional biopsy under general anaesthesia. Patient No. 3 underwent an incisional biopsy under local anaesthesia. Results of the pathological examination are listed in Table II.

No post-operative complications were seen and the patients were referred to a specialized unit for the treatment of the tuberculosis. A regimen of isoniazid 300 mg/d and rifampicin 600 mg/d was started. Follow-up was for two years and showed no recurrence of disease.

## Discussion

Tuberculous lymphadenitis was considered to be one facet of a generalized infection (Kent, 1967; Cantrell *et al.*, 1975; App-

TABLE I
PATIENTS AND CLINICAL FINDINGS

| Patient No. | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Age | 42 | 17 | 85 | 26 | 30 |
| Sex | F | F | F | F | F |
| Duration of mass (months) | 3/4 | 4 | 1 | 6 | 3 |
| Size (cm) | 5 × 6 | 3 × 5 | 3 × 4 | 3 × 3 | 4 × 4 |
| Chest X-ray | – | – | C.O.L.D. mild cardiomegally | – | – |
| PPD Skin test | + | – | 0 | + | + |
| Hemogram | – | – | ESR | – | – |

+ positive, – negative, 0 not done or recorded

TABLE II
RESULTS OF PATHOLOGICAL EXAMINATION OF BIOPSIED NODES

| Patient | Caseating granuloma | Acid fast bacilli (Ziehl-Neilsen) |
|---|---|---|
| 1 | + | – |
| 2 | + | + |
| 3 | + | 0 |
| 4 | + | + |
| 5 | + | – |

– negative, + postive, 0 not done or recorded.



https://doi.org/10.1017/S0022215100105080 Published online by Cambridge University Press

ling and Miller, 1981) although perhaps the trend now is towards seeing it appearing without symptoms or signs of systemic infections (Levin Epstein and Lucente, 1982; Stanley *et al.*, 1983).

Although declining in prevalence in non-endemic regions of the globe, owing to improved public health measures of chemotherapy, scrofula cannot be regarded as a rare entity and should be remembered whenever the diagnosis of an elusive case of cervical adenopathy is being considered.

Cervical lymphadenopathy may arise from myobacterial infections other than those due to mycobacterium tuberculosis. These infections may resemble one another but it is important to make the distinction because their clinical course and treatment may be different. In some series, lymphadenitis due to other myobacterial infections was 10-fold greater than lymphadenitis due to M. tuberculosis (Appling and Miller, 1981).

Other granulomotous diseases must also be considered, such as cat scratch disease, fungal infections, lymphogranuloma venereum, syphilis, leprosy, tularemia, sarcoidosis, brucellosis and toxoplasmosis. Sarcoidosis and brucellosis usually have no central necrosis (Stanley *et al.*, 1983).

These organisms may directly involve the parenchyma of the major salivary glands and their periglandular or intraglandular nodes. A series of five cases with involvement of salivary glands has been reported (Stanley *et al.*, 1983). A case of tuberculosis of the intraparotid lymph nodes has been reported (Kuruvilla *et al.*, 1981).

Scrofula can also mimic other diseases, thus causing delay in treatment, with increased risk to the surrounding personal and general public. In one series reported (Levin Epstein and Lucente, 1982), some of the 16 patients were suspected of having metastatic nasopharyngeal carcinoma, lymphoma or collagen disease as well as other malignancies.

The diagnosis of scrofula is considered by most authors to be a lengthy and difficult process.

The diagnosis should be based on good history taking, thorough physical examination, laboratory tests, skin tests—PPD, acid-fast staining of tissue obtained at biopsy, culture results, histological analysis and response to anti-tuberculous chemotherapy.

The typical granulomatous pattern of epithelial cells, giant cells and central casseous necrosis is found with both tuberculous mycobacterial infection involving the nodes and the glandular parenchyma.

In our own series, only one patient (No. 1) gave a positive history of contact with tuberculosis. No laboratory tests were of any positive value in our patients although they did sometimes help us to rule out other entities. Chest X-rays were normal in only 39 per cent in Kent's (1967) report. In Huhtis *et al.* (1975) series, 40 per cent had positive findings on X-ray and 10 out of 16 patients (63 per cent) had such findings in Levin Epstein and Lucente's (1982) work.

In our own patients all chest X-rays were reported as negative.

Skin tests are more definite, ranging from 100 per cent positive (Cantrell *et al.* 1975) to 81 per cent in Levin Epstein and Lucente (1982). Seventy-five per cent of our patients (3 out of 4) had positive PPD tests.

Acid-fast staining of tissue obtained at biopsy is also considered unreliable if negative. Stains such as Ziehl-Neelsen and Auramina-Rhoda, considered superior for staining (Huhti *et al.*, 1975), are positive in 20 per cent (Cantrell *et al.*, 1975) to 44 per cent (Levin Epstein and Lucente, 1982). Our series showed 40 per cent positive staining by the Ziehl-Neelsen method.

Culture results vary from 10 per cent (Cantrell *et al.*, 1975) to 69 per cent (Huhti *et al.* 1975). Our own culture results, when it was feasible to obtain them, were inconclusive.

Histological analysis is considered reliable, varying from 93 per cent of Levin Epstein and Lucente's (1982) series to 100 per cent in our own.

In selecting therapy, several options are considered: chemotherapy, surgery or a combination of the two modalities.

Surgery as an only treatment is not recommended, with recurrence rates of 31 to 91 per cent (Kent, 1967; Levin Epstein and Lucente, 1982).

Chemotherapy alone gives better results, with a success rate of 73 to 88 per cent (Huhti *et al.*, 1975). When scrofula is considered as a manifestation of a generalized disease process, chemotherapy, with a minimum two drugs, is advocated (Kent, 1967; Cantrell *et al.*, 1975; Appling and Miller, 1981).

All authors do agree, however, that in cases of grossly enlarged nodes, fistulous tracts or impending breakdown of lymph nodes surgery is indicated.

Excisional rather than incisional biopsy is the procedure of choice (Cantrell *et al.*, 1975; Levin Epstein and Lucente, 1982; Stanley *et al.*, 1983), executed in all of our patients but one, with no complication.

Responses to the combined regimen are good, with 94 per cent successes reported by Levin Epstein and Lucente (1982) and 95 per cent by Huhti *et al.* (1975). Our own patients were lost to follow-up after several months of treatment but all were doing well at the time and no recurrence was seen.

## Conclusion

Scrofula is an uncommon disease but should always be considered in patients with cervical adenopathy, even if no other signs and symptoms are present.

The diagnosis of scrofula is a lengthy, difficult process which is obtained by the history, clinical evaluation, PPD skin test, histopathology and response to treatment.

A regimen combining excisional biopsy with post-operative multi-drug anti-tuberculous chemotherapy is recommended.

## References

Appling, D. and Miller, R. H. (1981) Mycobacterial cervical lymphadenopathy: 1981 update. *The Laryngoscope,* **91:** 1259–1265.

Brothwell, D. and Sandinson, A. T. (1967) Diseases in antiquity, Charles C. Thomas Publishers, Springfield, II. p. 263.

Cantrell, R. W., Jensen, J. H. and Reid, D. (1975) Diagnosis and management of tuberculous cervical adenitis. *Archives of Otolaryngology,* **101:** 53–57.

Huhti, E., Brander, E., Paloheimo, S. and Sutinen, S. (1975) Tuberculosis of the cervical lymph nodes: a clinical, pathological and bacteriological study. *Tubercle,* **56:** 27–36.

Kent, D. C. (1967) Tuberculous lymphadenitis: not a localized disease process. *American Journal of the Medical Sciences,* **254:** 866–873.

Kuruvilla, A., Saha, N. K., Barton, R. P. E. and Zardawi, I. M. (1981) Tuberculosis of intra-parotid lymph nodes. *Journal of Laryngology and Otology,* **95:** 1165–1167.

Levin Epstein, A. A. and Lucente, F. E. (1982) Scrofula—the dangerous masquerader. *The Laryngoscope,* **92:** 938–943.

Stanley, R. B., Fernandez, J. A. and Peppard, S. B. (1983) Cervicofacial mycobacterial infections presenting as major salivary gland disease. *The Laryngoscope,* **93:** 1271–1275.

Address for correspondence:
Y. P. Talmi, M.D.,
*Department of Otolaryngology,*
Golda Medical Centre,
P.O.B. 121, Petah Tikvah,
Israel.

https://doi.org/10.1017/S0022215100105080 Published online by Cambridge University Press