SESSION II

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Tuberculous cervical lymphadenopathy

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Summary

Forty-five cases of tuberculous cervical lymphadenopathy have been treated by a combination of early surgery and long-term chemotherapy. The majority of these patients have been immigrants of Asiatic origin.

The posterior cervical group of nodes has been the most commonly involved. The site of primary infection was not identified.

Histological examination of biopsy material proved the most reliable diagnostic method.

Possible alternative methods of managing these cases are discussed.

THE present study concerns forty-five patients who have been treated by a combination of chemotherapy and surgery in the Central Middlesex Group during the 6-year period 1965-70 inclusive.

Sex incidence and nationality

Table 1 shows the distribution of these patients by sex and nationality. There were twenty-one males, mean age 32 years (range 12-50) and twenty-four females, mean age 38 years (range 13-71). The great preponderance of Indians in this series is very striking. However, this is largely a reflection of the tendency of Asiatic immigrants to congregate in particular urban districts. In other neighbouring hospital groups, the incidence of the disease has been observed to be highest among Pakistanis. Certainly it is evident that the Asiatic races are particularly susceptible to the disease.

Also noteworthy is the low incidence in the West Indians as compared with the Asiatics. That this is not due to a major change in the population distribution of the borough is shown by McNicol & Mikhail (1971).

TABLE 1.

Nationality	Sex	
	Male	Female
Indian	13	18
Pakistani	3	1
Jamaican	2	1
Spanish	0	2
Czech	0	1
Burmese	0	1
Cypriot	1	0
Irish	1	0
English	1	0
Total	21	24

Table 2 illustrates the sudden explosion in the incidence of the disease that took place in 1968, following which the number of cases each year has remained at much the same level. The reasons for this sharp increase are not entirely clear. It seems probable that the influx of Kenyan Asians in 1966 was a contributing factor, but many of the patients in this study had entered this country long before this time.

TABLE 2.

Year	No. of cases
1965	1
1966	1
1967	2
1968	14
1969	11
1970	15

Duration of stay in U.K.

Table 3 shows the mean length of time spent in the U.K. before the diagnosis of tuberculous cervical lymphadenopathy was made. It is clear that there is a very marked sex difference in this factor and that this is especially true of the Indian patients.

TABLE 3.

	Years in U.K. (mean)	Range (years)
Males	8	2-16
Females	4	1-20
Indian males	7.5	2-16
Indian females	2.5	1-14

Do these patients contract the disease after entering the U.K., or have they brought it with them from their parent country? No definite answer can be given to this question at the present time. Our knowledge of the natural history of tuberculous cervical lymphadenopathy in the adult is still extraordinarily scanty and the normal interval between infection and gland enlargement is not known.

However, while this interval may conceivably be as long as 2 years, it would seem unlikely to be as long as 8 years (the average duration of stay of the males in this series). On the other hand, since most of these patients have come from countries where the incidence of tuberculosis is high, it would be very remarkable if none was carrying the disease on entry. Nevertheless, the evidence of these figures suggests that in at least a substantial proportion of these cases, the infection has been acquired *after* entering the U.K.

Unfortunately, no information is available concerning the Mantoux status of these patients on entry. All were positive by the time glandular enlargement was manifest.

Site of affected glands

Table 4 shows the anatomical distribution of the affected groups of glands. Of particular interest is the very high incidence of posterior cervical lymphadenopathy in this series. This particular group was involved in thirty-two out of the forty-five cases and was the *only* affected group in twenty-nine.

Such a high incidence of disease in this site does not appear to have been reported previously. Kent

TABLE 4.

Sites of disease	No.
Posterior triangle	32
Anterior triangle	9
Submandibular	6
Axillary	1

(1967) records an incidence of 46%, taking the supraclavicular and posterior triangle lymph nodes together. Wilmot, James & Reilly (1957) found only five cases of lymphadenopathy at this site out of seventy-one patients in whom only one group of glands was affected.

The source of primary infection was never identified in this series, and the reason for this propensity of the posterior cervical glands to develop the disease was not apparent.

One of the striking features in the series was the rarity of overt tuberculosis at any other site. Only two cases had sputum-positive pulmonary tuberculosis at the time the cervical lymphadenopathy was discovered. Two had suspicious apical shadows but were sputum-negative and one showed hilar lymphadenopathy of unknown aetiology. There was no case of bone or joint tuberculosis.

Wilmot *et al.* (1957) also found a low incidence of active pulmonary tuberculosis (four out of eighty-one cases) in their series, although 50% showed evidence of old pulmonary tuberculosis on X-ray. In contrast, German, Black & Chapman found an incidence of *active* pulmonary tuberculosis in 50% of their patients.

In the absence of evidence of an initial source of infection in the majority of patients in this series, the possibility that these glands represent part of a primary complex must be considered. Miller & Cashman (1958) in their study of 159 children concluded that this was the case in this age-group and that the tonsils were the commonest site of infection in the case of cervical lymphadenopathy. Where other nodes were affected, e.g. the inguinal, axillary or pre-auricular, a primary skin focus was usually to be found.

Tonsillectomy was not performed in any patients in the present series. However, the relative rarity of involvement of the jugulo-digastric group of nodes would suggest that this was not a frequent source of infection. A skin focus was never identified in the area normally drained by the posterior cervical nodes.

If therefore the cervical lymphadenopathy in these areas does indeed represent part of a primary complex, then we have failed to recognise and identify the initial site of infection.

Diagnosis

Diagnosis was attempted by three methods.

(a) Direct staining for acid-fast bacilli in smears from the excised glands (or from the pus and curettings in the case of an abscess).

(b) Culture of the gland tissue or pus on selective media.

(c) Histological examination of the excised material.

Table 5 shows the number of positive results achieved by these three methods.

TABLE 5.

Diagnostic methods	No.
Positive histological report	
Caseous foci	20
Caseous necrosis	21
Non-caseous foci	4
Positive culture for tubercle bacilli	25 (56%)
Positive smear for tubercle bacilli	10 (22%)

It is clear that the direct smear technique carries a very low success rate and no weight can be attached to a negative result in these cases.

More surprising was the low rate of positive cultures achieved on selective media. This contrasts with the very high success rate achieved in tuberculous mediastinal node biopsies (Mikhail, personal communication). In all cases the organism was *Mycobacterium tuberculosis*. Brocard, Burin & Akoun (1964) obtained positive cultures in only thirty-six out of fifty-five cases of cervical lymphadenopathy in adults (65%), i.e. a comparable rate to the present series.

It seems clear that histological evidence is the most reliable in the diagnosis of this condition. In forty-one out of the forty-five cases (91%) either typical caseous foci or caseous necrosis was reported. In the remaining four, foci of epithelioid cells were found without actual caseation but with an appearance strongly suggestive of tuberculosis. The presence of acid-fast bacilli in histological sections was a variable finding and of no value in establishing diagnosis.

Treatment

A wide variety of treatment regimes has been advocated by different authors.

In this series the standard regime has been as follows:

(a) When diagnosis is established, commence therapy with streptomycin, PAS and INAH.

(b) After at least 2 weeks' therapy, excise the affected group of nodes.

(c) Continue triple therapy for a total period of 3 months.

Maintain on PAS and INAH alone for a total period of 18 months to 24 months of chemotherapy.

This regime was modified in individual cases where drug sensitivities made this necessary, but it represents the general policy on which treatment was conducted.

Surgical technique

The aim of surgery in these cases was to remove those glands which were obviously involved in the

disease process, leaving glands which were macroscopically normal.

Table 6 indicates the surgical procedures actually carried out. In four cases only one gland was apparently involved and was removed as both a diagnostic biopsy and as a part of treatment.

TABLE 6.

Types of surgery	No.
Excision biopsy only	4
Incision and curettage only	5
Local gland excision	25
Block dissection of glands	11

In five patients curettage of a single caseating gland was all that was necessary.

In the remaining thirty-six patients twenty-five required excision of a local group of glands only. Eleven needed an extensive excision, in one case with resection of the internal jugular vein.

In all cases where local excision was possible, a transverse skin incision was used. In extensive excisions it was usually necessary to add to this an incision parallel to the posterior border of the sterno-mastoid in order to reach the apex of the posterior triangle. Although every effort was made to preserve cutaneous branches of the cervical plexus, in many cases these were inextricably involved in the gland mass and were sacrificed. The area of anaesthesia resulting from this was small and did not constitute a major disability.

In six cases the initial procedure was curettage and drainage of a tuberculous abscess followed after 6-8 weeks by excision of the underlying glands and any sinus tracts that had persisted.

Primary healing was achieved in all cases.

Follow-up

The length of follow-up is shown in Table 7. The times refer to the operation date *not* the date of completion of chemotherapy. It is clear therefore that a much longer period of observation is still required in this group of patients.

Nevertheless twenty of the forty-five patients have completed treatment and 2 or more years have passed since operation without a single case of local recurrence after excisional surgery.

TABLE 7.

Postoperative follow-up	No.
Less than 1 year	13
1-2 years	12
2-3 years	14
3-4 years	4
More than 4 years	2

By contrast many instances have occurred of progression of the disease at the same site when diagnostic biopsy has not been followed by early excision, and reliance has been placed on long-term chemotherapy alone. In addition there have been cases where following the excision of one group of glands, the disease has developed in another group during the course of postoperative chemotherapy.

The following case histories will illustrate these points.

Case No. 1, Mrs D. B. aged 36, Indian

Entered U.K. in 1965.

July 1968. Left supraclavicular lymph node biopsied. Caseous necrosis reported histologically. Treatment with streptomycin, PAS and INAH commenced.

November 1968. Incision and curettage of cold abscess at site of original biopsy. Triple therapy continued.

November 1969. While still on chemotherapy a large mass of tuberculous nodes developed in the left posterior triangle adjacent to the previous cold abscess.

In addition an enlarged node appeared in the right anterior triangle.

Treated by extensive excision of nodes on left side and local excision of gland on right side.

No further recurrence since this procedure.

Case No. 2, Mr H. C. aged 38, Jamaican

Entered U.K. 1955.

1967. Tuberculous axillary lymph-node excised.

Treated with full triple therapy for 6 months followed by PAS and INAH for 18 months.

1969. While still on treatment the axillary lymph nodes at the same site as the original biopsy began to enlarge.

The whole group were excised, and chemotherapy continued for a further 15 months.

No further recurrence has occurred.

Case No. 3, Mr W. H. aged 35, British

1969. Biopsy of enlarged right supraclavicular lymph node showed caseous necrosis histologically.

Triple therapy commenced.

1970. While still on chemotherapy, cold abscess developed at site of biopsy, necessitating excision and curettage.

Local excision followed, since when there has been no recurrence to date.

Discussion

This study indicates that a combination of long-term chemotherapy and early excision of the affected glands is an effective way of dealing with the problem of tuberculous cervical lymphadenopathy.

The important question is whether it is the most efficient method of treatment available.

Two alternative regimes have been advocated by different authors:

- (a) long-term chemotherapy alone;
- (b) short-term chemotherapy and excision.

Brocard *et al.* (1964) claimed good results from medical therapy alone in 78% of their cases. The length of treatment was very variable, ranging from 1–5 months in hospital and 2–24 months as an out-patient. The majority of these patients were given steroids in addition to the standard triple therapy.

Kent (1967) also argues strongly in favour of prolonged and adequate medical therapy, on the basis that cervical lymphadenopathy is *not* a localized process but a local manifestation of a generalized disease.

Wilmot *et al.* (1957) come out equally strongly in support of the opposite view. In a series of fifty-four patients treated by surgical excision, recurrence of the disease occurred in only three. All of these responded to further excision without subsequent recurrence.

These authors point out that before the discovery of antituberculous drugs, excellent results were reported by the use of excisional surgery alone (Bailey, 1948). On the basis that tuberculous cervical lymphadenopathy was a localized disease process, Gillam & Knowles (1963) also advocated surgery as the primary method of treatment with the addition of a short course of anti-tuberculous drugs to cover the period immediately before and after the operation.

Two points relating to this question of appropriate therapy emerge from the present study.

The first is the rarity of tuberculosis in other organs, or even in other groups of lymph nodes, at the time of diagnosis. This supports the view that cervical lymphadenopathy is usually a well-localized form of the disease.

The second is that, as the cases quoted above illustrate, prolonged chemotherapy is often ineffective in controlling the local disease. Furthermore it offers no guarantee against the development of affected nodes at other sites. Indeed it might prove that the incidence of this complication is unaffected by chemotherapy.

If one accepts that early surgery offers the best chance of permanent cure in cervical lymphadenopathy, it is certainly tempting to hope that the addition of a prolonged course of chemotherapy may be unnecessary.

Clearly this question can only be decided by a controlled clinical trial of surgery with short and long-term chemotherapy respectively. This trial is shortly to be carried out.

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