THE USE OF FINE NEEDLE ASPIRATION BIOPSY IN PATIENTS WITH MULTIPLE LYMPHADENOPATHY BEFORE OPEN BIOPSY

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ABSTRACT

When a clinician is faced with a patient who presents with lymphadenopathy and in whom the clinical examination and routine investigations are normal, excision biopsy is usually the next step of management to obtain a tissue diagnosis. In a patient who has multiple lymphadenopathy, deciding on which node to biopsy can be difficult because some of the enlarged nodes may not reflect the true disease process. When such a lymph node is biopsied, the actual diagnosis can be delayed or even missed. Fine needle aspiration biopsy has been shown to be an effective tool in the investigation of multiple lymphadenopathy. Many, if not all, of the enlarged lymph nodes can be sampled at one sitting. If this procedure fails to provide a definitive diagnosis, the clinician should then proceed on to an open biopsy. Two cases of multiple lymphadenopathy in which open biopsies failed to reveal the true nature of the disease but subsequent fine needle aspiration biopsies did are presented and discussed.

Keywords: *nasopharyngeal carcinoma, tuberculosis, reactive lymphadenopathy*

SINGAPORE MED J 1993; Vol 34: 392-394

INTRODUCTION

Fine needle aspiration cytology (FNAC) is the study of cells obtained from the body by percutaneous aspiration with fine needles (22 gauge or higher) and a vacuum system generally provided by an air-tight syringe[1,2]. Today, it is an accepted procedure used to diagnose lesions in the thoracic and abdominal cavities as well as superficial lumps in the body[3]. In Singapore, FNAC is commonly used in the outpatient clinics to investigate superficial lumps since the late 1980s.

An aspirated cytologic smear is more difficult to assess than a histologic section. For proper evaluation of the smears competent cytopathologists are necessary[4]. Aspiration cytology is a valuable diagnostic tool when used in the proper clinical setting with appropriate clinicopathological back-up[5]. FNAC can be more useful than open biopsy in cases where the patients present with multiple lymphadenopathy. On open biopsy, the surgeon can only excise those lymph nodes accessible through the incision. Severe inflammation around the lymph nodes may hinder the identification of tissues and the excised specimen may not be representative. With FNAC, the clinician can aspirate nearly all the palpable lymph nodes, thus providing better sampling and a higher positive yield. Two such cases in which fine needle aspiration biopsy provided the diagnosis after open biopsy had failed are presented.

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CASE REPORTS

Case 1

A 29-year-old Filipino lady complained of swellings on the right side of her neck for nine months. There were no other symptoms. She was found to have multiple right cervical lymphadenopathy. An excision biopsy of a lymph node done a month earlier was reported histologically as showing reactive hyperplasia. As the lymph nodes had continued to enlarge, she was referred for a second opinion.

On examination her general condition was satisfactory. A healed incision was present on the right side of her neck. Numerous matted lymph nodes of 2 to 3 cm diameter were palpated at levels 2 and 3. Flexible endoscopy of her nasopharynx revealed a fungating mass, the biopsy of which revealed undifferentiated carcinoma (Fig 1). Fine needle aspiration biopsies taken from various enlarged lymph nodes revealed metastatic carcinoma consistent with a primary in the nasopharynx (Fig 2). The Epstein-Barr virus serology was positive. The patient elected to return to the Philippines for treatment.

Fig 1 - Postnasal space biopsy shows infiltrative clusters of undifferentiated carcinoma cells with pleomorphic vesicular nuclei (x 200).

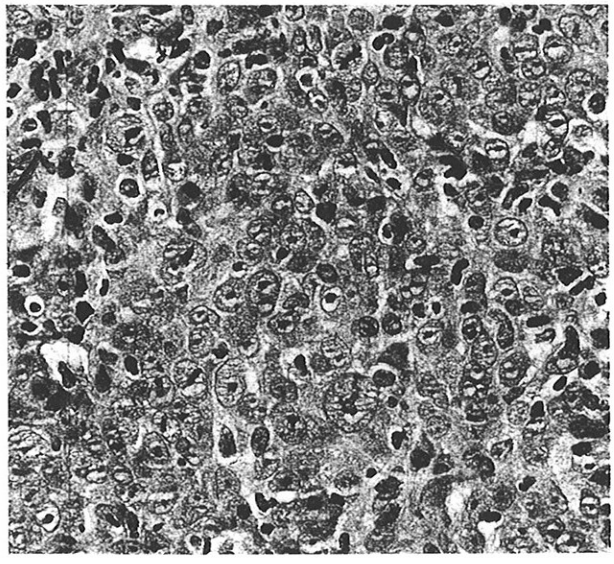


Fig 2 - Fine needle aspiration biopsy of the cervical lymph nodes shows cohesive groups of carcinomatous cells with pleomorphic nuclei (x 200).

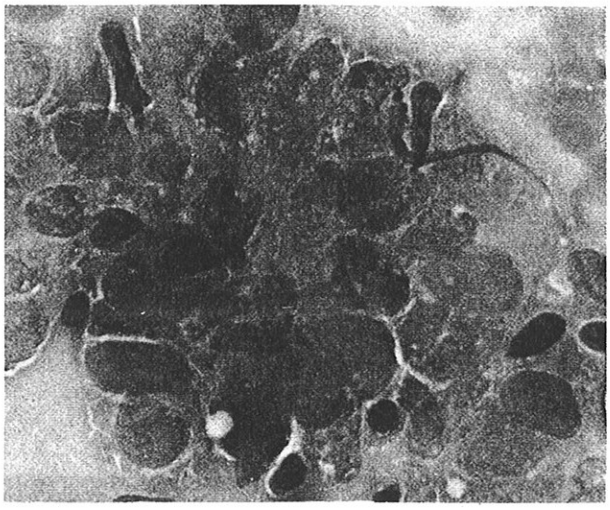
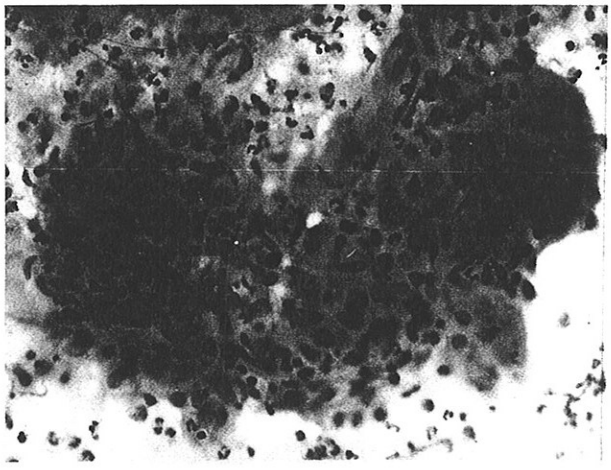


Fig 3 - Smear of fine needle aspiration biopsy of cervical lymph nodes shows epitheloid cells in clusters with accompanying infiltrate of neutrophils and lymphocytes (x 200).



Case 2

A 23-year-old Thai construction worker complained of painful swellings on the right side of his neck for 16 days. This was treated by his general practitioner with antibiotics without any improvement. His condition deteriorated and he was referred to the hospital for further management. The clinical diagnosis was suppurative lymphadenitis. He was listed for an incision and drainage. During the operation no pus was seen but only acutely inflamed tissue which was biopsied. The histological examination showed traumatised skeletal muscle due to a misdirected biopsy. He was referred for an otolaryngologic evaluation.

On examination, his general condition was satisfactory. A clean wound was noted on the right side of his neck. Multiple matted lymph nodes were present at levels 2 and 3. The overlying skin was mildly inflamed. Flexible endoscopy of his post-nasal space, nasal cavity and larynx was normal. Post-nasal space biopsy did not reveal any malignancy and Epstein-Barr virus serology was negative. Fine needle aspiration biopsies taken from various enlarged lymph nodes showed neutrophils, clusters of epitheloid cells and multinucleated giant cells (Fig 3). The impression was a granulomatous inflammation consistent with tuberculous lymphadenitis, although no acid-fast bacilli were demonstrated. The patient was started on anti-tuberculosis therapy.

DISCUSSION

Enlarged palpable cervical lymph nodes as a primary presenting sign is a very common problem in clinical practice. Often there are no other symptoms, and the physical examination apart from the lymphadenopathy is unremarkable. The routine investigations usually fail to elucidate the problem. Such lymphadenopathy may be due to acute or chronic inflammation, a primary malignancy of the lymphoid system, a metastasis from an occult primary malignancy or non-specific hyperplasia[6]. An otolaryngologic assessment is a must for evaluation of possible occult malignancy in the head and neck regions, particularly nasopharyngeal carcinoma in the local context. The other common sites of occult primary malignancies in the head and neck regions are the tonsils, base of tongue, supraglottis and piriform fossae[7]. The clinical approach to the problem of persistent lymphadenopathy without an obvious cause is to obtain a tissue diagnosis, traditionally achieved by performing an excisional biopsy.

Not every biopsy of an enlarged lymph node can establish the diagnosis in patients with multiple lymphadenopathy. The incidence of non-diagnostic lymph nodes biopsies varies from 30 to 53%[6,8,9]. Some of the reasons are : (a) removal of non-representative lymph node in that either the node is not involved by the disease process or has become involved by some other process so that the underlying lesion is no longer recognisable; (b) technical difficulty in excision and processing may distort all morphological changes beyond recognition; and (c) early changes may be so minimal and subtle that they are easily overlooked[8]. In acute lymphadenitis, the identification of nodal tissue can be difficult during an open biopsy as illustrated in Case 2. Frozen section at the time of excision has been suggested to reduce the rate of non-diagnostic biopsies[8]. Lymph nodes involved and not involved by a specific disease may lie in widely separated nodal groups, or they may lie adjacent to one another in the same group [10].

Lymph node biopsy is generally a safe and simple procedure but it has its disadvantages. These include (i) patient apprehension and discomfort; (ii) operating theatre time, and possible use of general anaesthesia; (iii) possible use of frozen section which increases operation time and demand on frozen section services; and (iv) resultant increase in medical care costs. By contrast, fine needle aspiration biopsy is relatively simpler and can be done in the clinic usually without anaesthesia, although a little lignocaine may be infiltrated at the site of puncture in those patients who are apprehensive. The cost of fine needle aspiration biopsy is very much lower compared to an excision biopsy and this procedure also takes a far shorter time, usually about 5 to 10 minutes. In the hands of experienced cytopathologists, false positive results are minimised. However, the false negative rate is higher than in excision biopsy[11]. The overall sensitivity of fine needle aspiration cytology for metastases to superficial lymph nodes was found to be as high as 96.5% compared to the 67.5% figure for lymphoma[12]. Another advantage of fine needle aspiration biopsy over excision biopsy is the greater sampling potential at one sitting as illustrated by the two cases. Where the facilities and trained personnel are available, fine needle aspiration biopsy is recommended to evaluate the lymphadenopathy before the excision biopsy, if necessary. This is to reduce the amount of unnecessary investigations [2,4,7,13-15] and to guide the clinician on the course of management. However, one excep-

tion is when the clinical suspicion is that of lymphoma where an excision biopsy is necessary for proper histological assessment.

ACKNOWLEDGEMENT

The authors would like to thank Dr W T Poh for providing the photograph and caption in Fig 3.

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