

Fine needle aspiration biopsy in diagnosis of metastases to thyroid gland¹

Thomas W J Lennard FRCS

Viney Wadehra MRCPATH

John R Farndon FRCS

Department of Surgery, University of Newcastle upon Tyne and Department of Pathology, Newcastle General Hospital

Summary: Three cases of metastasis to the thyroid gland are reported, in each of which fine needle aspiration biopsy confirmed the diagnosis and obviated the need for surgery. Fine needle aspiration biopsy is able to confirm suspected intrathyroid metastasis and can be performed as an outpatient or bedside procedure.

Introduction

Metastasis to the thyroid gland is rare (Pillay *et al.* 1977, Haguenaer *et al.* 1980), with some 139 cases existing in the world literature. Diagnostic confusion with primary thyroid disease is common (Treadwell *et al.* 1981, Elliott & Frantz 1960), often resulting in a formal excision biopsy which may not be necessary in the patient with widespread malignancy. Three further cases of metastasis to the thyroid are reported, and the role of fine needle aspiration biopsy (FNAB) is discussed.

Case reports

Case 1: A previously fit 63-year-old housewife was referred with symptoms of lethargy and lassitude. Clinical examination revealed pallor, and investigations confirmed a hypochromic microcytic anaemia and an ESR of 120 mm in the first hour. Urinalysis showed microscopic haematuria and an intravenous pyelogram demonstrated a left hypernephroma, which was excised. Peroperative and pathological examination of the renal vein revealed tumour infiltration from a clear cell adenocarcinoma of the kidney. Sulphur colloid liver scan and ^{99m}Tc bone scan were normal and there was no other evidence of metastasis clinically or biochemically. The patient remained well and recurrence-free for five months, but was then re-referred with dyspnoea, dysphagia and an increasing goitre. The right lobe of the thyroid was hard and enlarged, suggestive of metastasis, and FNAB demonstrated clear cell adenocarcinoma compatible with a renal origin (Figure 1). Chest X-ray showed bilateral hilar lymphadenopathy and tracheal compression. Hepatic alkaline phosphatase was markedly elevated. Symptomatic treatment was given and the patient died shortly afterwards.

Case 2: A 50-year-old woman presented with headaches, left-sided clumsiness and diplopia. CAT scan showed two cerebral metastases in the right and left parietal lobes, but the primary was unidentified despite numerous investigations. For 4 months she was treated with dexamethasone with good symptomatic improvement, but then developed dyspnoea, dysphonia and stridor. Examination revealed a firm mass in the right lobe of the thyroid, and FNAB showed malignant cells compatible with a squamous origin, probably bronchus. The primary remained unidentified until post-mortem when a squamous carcinoma of the right main bronchus was found, and the thyroid metastases were confirmed.

¹Accepted 17 November 1983

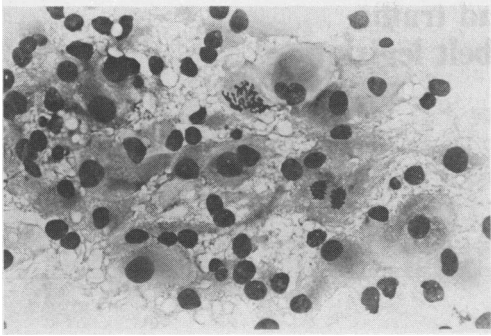


Figure 1. Fine needle aspirate from Case 1: metastatic renal carcinoma. ($\times 500$ Papanicolaou stain)

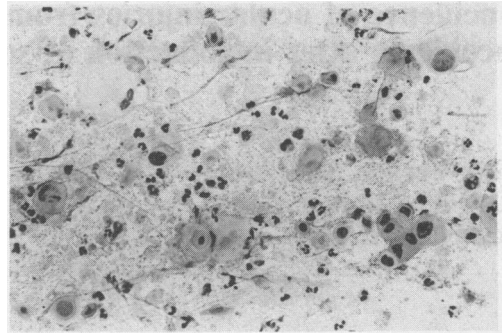


Figure 2. Fine needle aspirate from Case 3: keratinizing well differentiated squamous cell carcinoma. ($\times 500$ May-Grünwald Giemsa stain)

Case 3: A 61-year-old man was referred urgently with weight loss, lassitude and a thyroid swelling developing over 3 months. He had smoked 30 cigarettes a day all his adult life. Examination confirmed a hard swelling in the left lobe of the thyroid gland and cachexia. Clinical examination and routine investigations including chest X-ray, biochemical screening and bone scan, failed to reveal any other evidence of malignancy. FNAB of the thyroid was reported as showing a highly keratinizing and well differentiated squamous cell carcinoma (Figure 2). The patient died shortly afterwards, and post-mortem was not carried out.

Discussion

Metastasis to the thyroid gland is rare. The diagnosis is often made after excision of a nodule thought to be due to primary thyroid disease. Secondary tumour spread to the thyroid commonly indicates widespread malignant disease, and surgery to the thyroid may therefore be unnecessary.

Aspiration biopsy using a fine needle is now established in the investigation of primary thyroid disorders (Goldfarb *et al.* 1982, Löwhagen *et al.* 1981). It is a simple, relatively atraumatic procedure (Miller 1982), and can be carried out during outpatient or bedside consultation. Large-bore needle biopsy (Tru-Cut, Baxter Travenol, Illinois, USA) has been used in the past for the diagnosis of suspected intrathyroid metastasis (Treadwell *et al.* 1981), but we believe this to be superseded by the less traumatic technique of FNAB. All our cases confirmed that metastasis to the thyroid gland is associated with a poor prognosis and that formal excision, as either a biopsy or therapeutic procedure, probably contributes little to qualitative or quantitative survival. A rapid, simple technique such as FNAB is thus of benefit to the patient and the clinician in the management of suspected metastasis in the thyroid.

References

- Elliott R H E & Frantz V K (1960) *Annals of Surgery* **151**, 551–561
- Goldfarb W B, Bigos T S, Eastman R C *et al.* (1982) *American Journal of Surgery* **143**, 409–412
- Haguenaer J P, Gaillard J, Dubreuil C *et al.* (1980) *Annales d'oto-laryngologie (Paris)* **97**, 353–368
- Löwhagen T, Willem J S & Lundell G (1981) *World Journal of Surgery* **5**, 61–73
- Miller J M (1982) *Thyroid Today* **1**, 1–5
- Pillay S P, Angorn I B & Baker L W (1977) *South African Medical Journal* **51**, 509–512
- Treadwell T, Alexander B B, Owen M *et al.* (1981) *Southern Medical Journal* **74**, 878–879