

Pathology in Focus

Late metastasis of breast carcinoma to the external auditory canal

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Abstract

We present a case of secondary carcinoma of the external auditory meatus from a probable breast primary with a review of the literature.

Key words: Breast neoplasms; Ear canal; Neoplasm metastasis

Introduction

An example of metastatic spread to the ear is illustrated by the following case history. The true incidence of metastatic spread to this area remains unknown perhaps because of the apparent lack of interest of pathologists in the 'barren region of the temporal bone' (Friedmann, 1974).

A secondary neoplastic deposit in the temporal bone may remain latent and without any clinical evidence during the lifetime of the patient. Alternatively pain and facial palsy may be the initial and sole presentation of a distant primary neoplasm (Friedmann, 1974; Sahin *et al.*, 1991).

Case history

A 63-year-old lady presented with a three-month history of increasing left otalgia and hearing loss with recent fresh aural bleeding. Eight years earlier she had undergone a right simple mastectomy for a T₁ N₀ M₀ ductal adenocarcinoma and five years previously a total abdominal hysterectomy and bilateral salpingoophorectomy for a poorly differentiated papillary ovarian adenocarcinoma.

Clinical examination showed a swelling occluding the left external auditory canal. General, neurological and head and neck examination were otherwise normal. CT scanning indicated that the swelling was confined to the soft tissue of the canal with no bony involvement (Figure 1). A biopsy showed a moderately to well differentiated adenocarcinoma (Figures 2 and 3).

A sleeve resection was performed and elective post-operative radiotherapy undertaken. The patient remained clinically free of all disease 30 months after completion of her radiotherapy to the left auditory canal.

Discussion

Analysis of a series of 155 temporal bones removed routinely at necropsy revealed eight instances of secondary carcinoma involving various parts of the ear and temporal bone including the mastoid process, the facial and vestibulocochlear nerve, the inner ear

and major veins. One of the primaries was in the breast (Friedmann and Osborn, 1965; Friedmann, 1974).

Hill and Kohut (1976) reviewed 103 reported cases of distant metastatic spread to the temporal bone and noted that the three commonest primary sites were breast (18 per cent), lung (12 per cent) and kidney (10 per cent). We identified 165 similar reports which also showed breast to be the commonest primary (29 per cent) followed by lung (11 per cent), prostate (eight per cent), unknown primary (eight per cent) and kidney (six per cent).

Chronologically the ovarian neoplasm followed the removal of the breast tumour and ovarian adenocarcinomas rarely metastasize to the ear – indeed only one report of such spread to the tem-

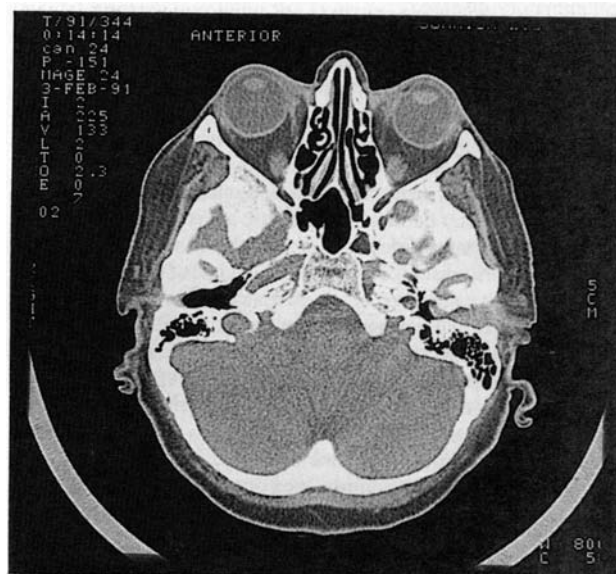


FIG. 1

Axial CT scan showing a lesion of the left external auditory canal without bony involvement.

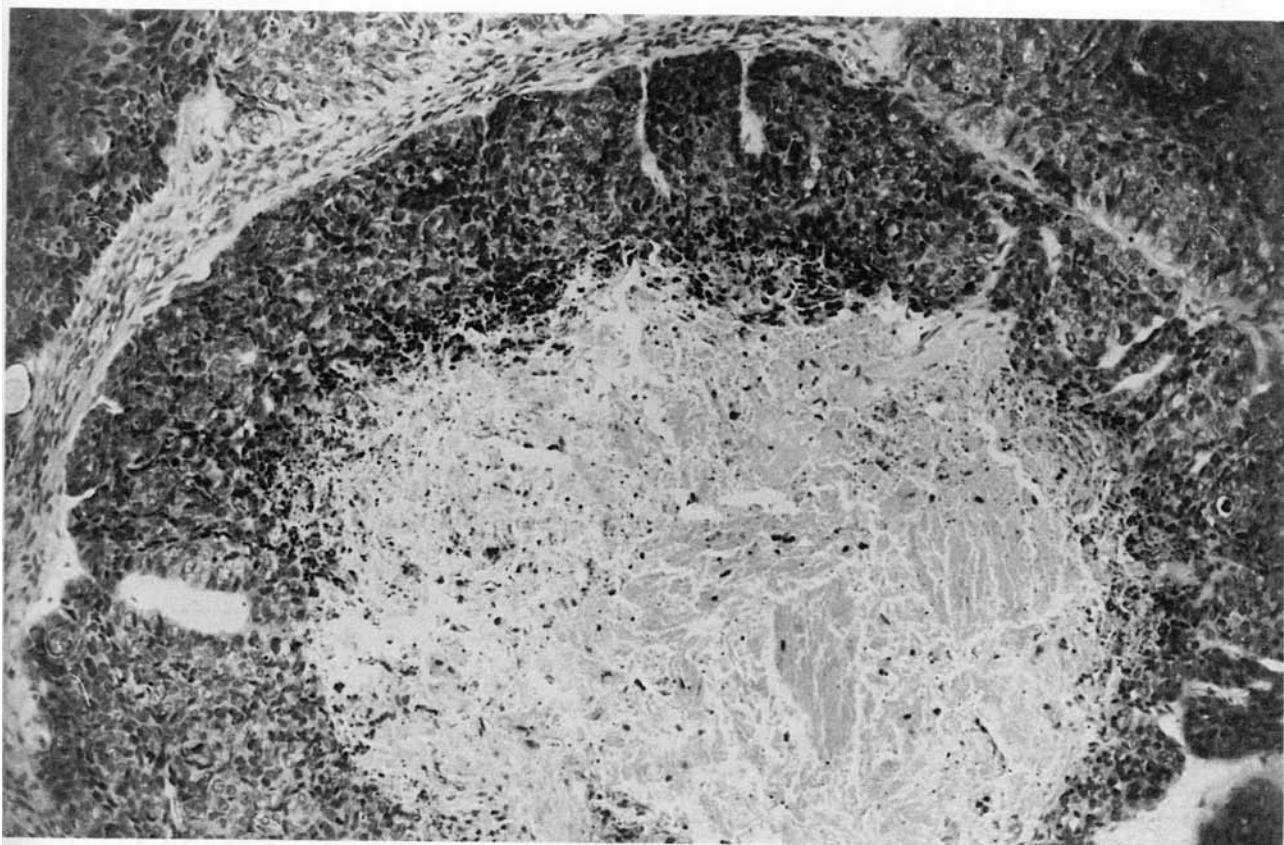


FIG. 2

Microscopy of the metastasis in the external auditory meatus displaying a 'comedo' type pattern commonly seen in similar neoplasms of the breast. (H & E; $\times 157$).

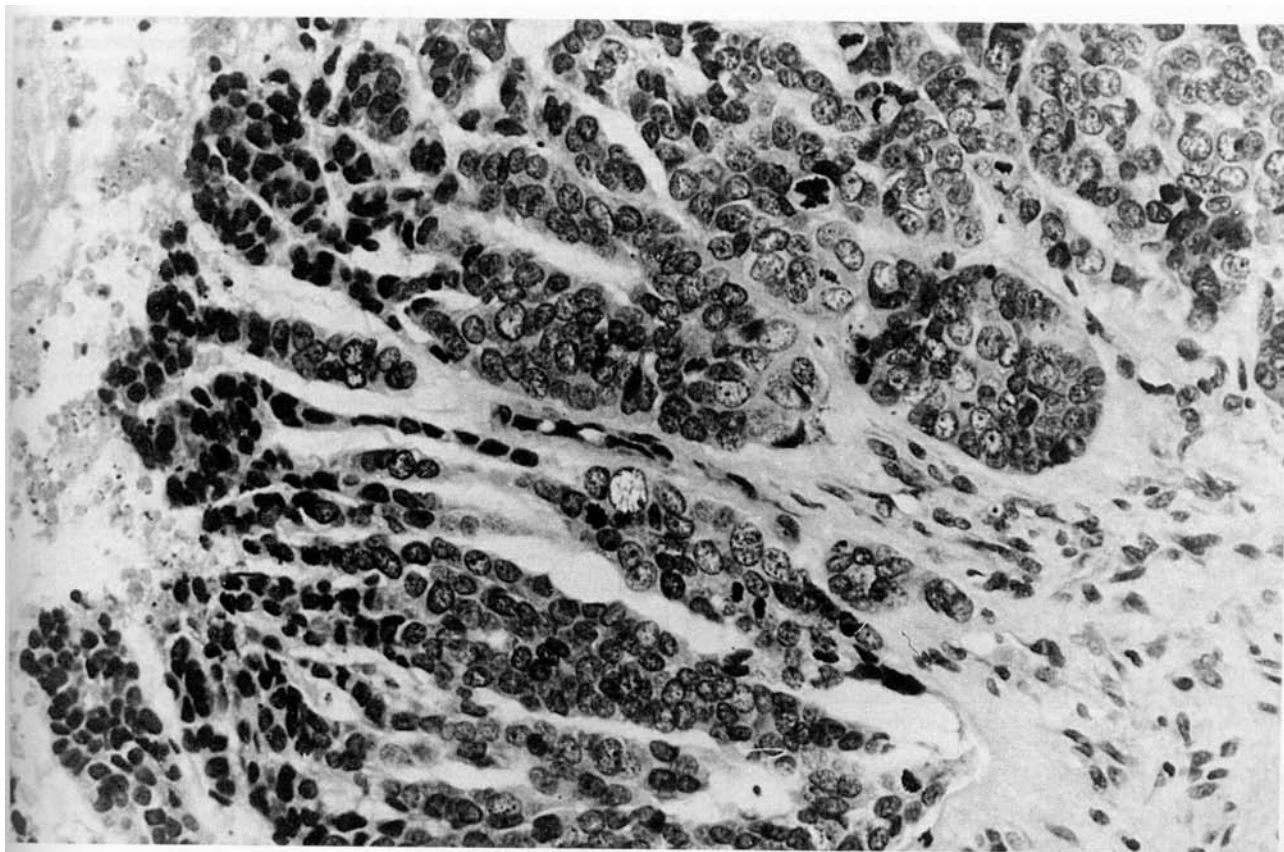


FIG. 3

Microscopy at higher magnification showing widespread invasion by a moderately well differentiated adenocarcinoma. (H & E; $\times 400$).

TABLE I
REPORTED CASES OF TEMPORAL METASTASES FROM PRIMARY BREAST MALIGNANCY

Primary site	No of cases	Primary histology	References
Breast	36	Adenocarcinoma (26)	Betal (1985)
			Feinhesser <i>et al.</i> , (1986)
			Greer <i>et al.</i> , (1976)
			Jahn <i>et al.</i> , (1979)
			Johnson <i>et al.</i> , (1984)
			Nelson and Hinojosa (1991)
			Schuknecht <i>et al.</i> , (1968)
			Shapoori (1965)
		Ductal carcinoma (2)	Maddox (1967)
			Morton <i>et al.</i> , (1987)
		Squamous carcinoma (1)	Adams <i>et al.</i> (1971)
		'Carcinoma' (7)	Doyon <i>et al.</i> , (1989)
			Friedmann and Osborn (1965)
			Meda <i>et al.</i> , (1959)
			Mollison (1930)
			Nylen (1936)
			Scott (1939)
			Thomas and Davis (1975)

poral bone has been identified (Adams *et al.*, 1971), whereas there are 36 previous reports of secondary deposits in this area from breast malignancy (Table I). Furthermore the microscopical features of the metastasis were thought to indicate a breast primary.

For malignancy of the external auditory canal or middle ear both primary radiotherapy and primary surgery give a five-year survival rate of 30–35 per cent, albeit with greater morbidity and mortality for the latter (Stell, 1984). From a 30-year review of 61 patients with malignancy of the ear canal and middle ear Golding-Wood *et al.* (1989) found that for all modalities of treatment half of the patients with external canal tumours remained disease free after five years compared to 24 per cent with middle ear tumours. Only two out of 17 patients who underwent salvage sub-total petrousectomy did well (alive and disease free after six and seven years) – the mean survival afterwards was seven months but mean palliation time was only three months. Both of the long-term survivors had external canal tumours and they felt that the advantage from this procedure was most likely for non-squamous external auditory canal tumours. In the absence of bony invasion the prognosis for squamous carcinoma of the external auditory canal is better than for other regions of the temporal bone and radical surgery may be avoidable.

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