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Metastatic melanoma of the tonsil

S. Sood, F.R.C.S., S. B. Nair, F.R.C.S., J. D. Fenwick, F.R.C.S., K. Horgan, M.Ch., F.R.C.S.*

Abstract
Metastasis to the tonsils from malignant melanoma is rare. This paper describes one such case in a woman with synchronous breast adenocarcinoma and cutaneous malignant melanoma who had a most unusual clinical course.

Key words: Malignant melanoma; Tonsil; Neoplasm, metastasis

Introduction

Head and neck mucosal metastasis of cutaneous malignant melanoma is extremely rare. Since 1912 fewer than 100 cases have been reported in the English-language literature (Cauchois *et al.*, 1993). Carcinomas and lymphomas are the commonest malignant neoplasms of the tonsils (Friedmann, 1986).

Case report

A 73-year-old Caucasian woman was referred acutely to the ENT surgery department with a one-week history of a gradually enlarging painful lump in the throat, and halitosis. She had presented six months earlier with a stage 3 breast carcinoma (>5 cm, not fixed with mobile clinically involved ipsilateral axillary lymphadenopathy). This was managed by neoadjuvant chemotherapy (cyclophosphamide, methotrexate and 5-fluorouracil) with complete clinical resolution of palpable disease.

While attending for follow-up at the oncology clinic a raised, ulcerated, non-pigmented lesion was noted on the extensor aspect of her right elbow. The patient stated that during her chemotherapy it had gradually enlarged. Histological examination of a punch biopsy of this lesion showed extensive infiltration of the dermis by what was thought to represent poorly differentiated carcinoma. As no other primary carcinoma was apparent, the most likely diagnosis was thought to be a cutaneous metastasis from her breast cancer, although it was noted that the oestrogen receptor immunohistochemical studies were negative which contrasted with the positive oestrogen receptor status of the primary breast tumour. Furthermore, the lesion had enlarged during the course of chemotherapy despite resolution of the palpable breast primary.

It was decided to irradiate the elbow lesion, but while awaiting her treatment appointment, she presented as an emergency with her throat complaint. On examination she had a black nodule on the left tonsil with accompanying fetor. There was no cervical nor axillary lymphadenopathy. The lesion on her elbow was also noted. She had an excision biopsy of her left tonsil. Histology of the specimen showed a metastatic tumour within the tonsil likely to be malignant melanoma from both morphology and immunohistochemistry marker studies. In light of the tonsillar histology she had a wide local excision of her elbow lesion and the histology of this confirmed it to be a nodular malignant melanoma. Further immunohistochemistry studies of the original biopsy specimen of the elbow lesion confirmed it to be a nodular malignant melanoma.

Over the next few weeks she developed further pigmented lesions on her face, chest and vulva which were excised. All of these lesions were metastatic malignant melanoma on histology. She also developed cervical lymphadenopathy which was shown to be metastatic melanoma on fine needle aspiration cytology and this was treated with radiotherapy to the neck with complete clinical response. Three months following her initial left tonsillectomy she presented once again with the sensation of a lump in her throat. Examination revealed a black, irregular right tonsil. She subsequently underwent surgery for removal of the right tonsil and surrounding base of the tongue region. No further local or distant malignant melanoma metastases have developed in the subsequent six months.

However, her primary breast cancer once again became palpable, with a further carcinoma developing in the contralateral breast. She underwent wide local excision of

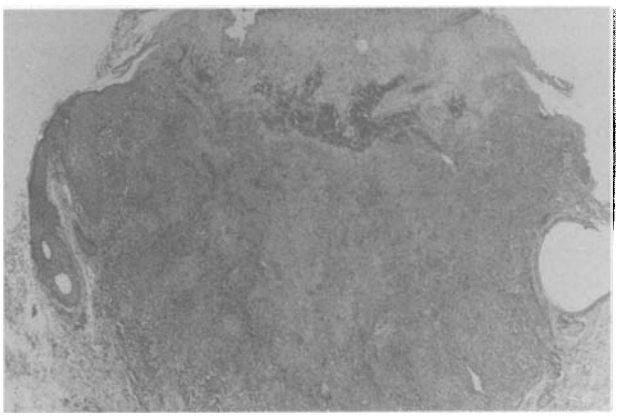

Fig. 1
Metastatic melanoma of face (H & E; ×13)

From the Departments of Otolaryngology and Surgery*, United Leeds Teaching Hospitals, Leeds General Infirmary, Leeds, UK.
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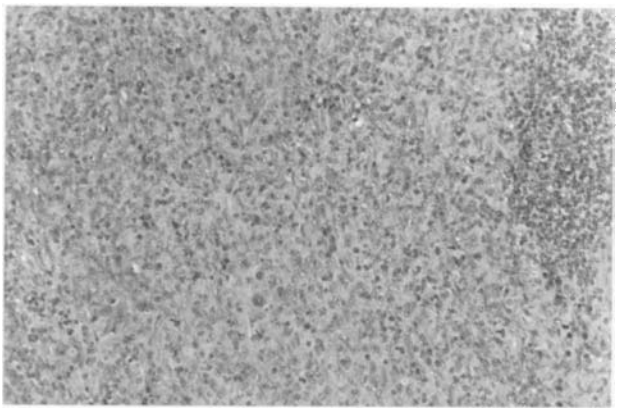

FIG. 2
Metastatic melanoma of tonsil (H & E; × 52).

the breast lump and histological examination confirmed it to be an invasive ductal adenocarcinoma. This was treated with radiotherapy and tamoxifen. She currently remains well without clinical evidence of recurrent melanoma or breast carcinoma 20 months after her initial breast cancer presentation.

Pathological findings

All the specimens were stained with haematoxylin and eosin for histological examination (Figures 1, 2). Immunocytochemical studies with immunoperoxidase techniques are performed using antibodies for demonstration of S100 protein, HMB45, cytokeratins and CD45. The left tonsil specimen showed cells containing fine granular pigment. This was S100 positive (Figure 3). Both facial and elbow lesions were also S100 positive, but these cells were negative for HMB45 and for melanin using the Masson Fontana stain (expected in malignant melanomas). Cytokeratins (CAM5.2), polykeratin (expected in epithelial tumours) and vimentin (expected in connective tissue tumours) were all negative. The cells from the elbow lesion were particularly pleomorphic; these changes might be explicable on the basis of preceding chemotherapy, which is known to render neoplastic cells more atypical than otherwise. The right tonsil specimen was positive for S100 protein and some cells contained Masson Fontana positive granules.

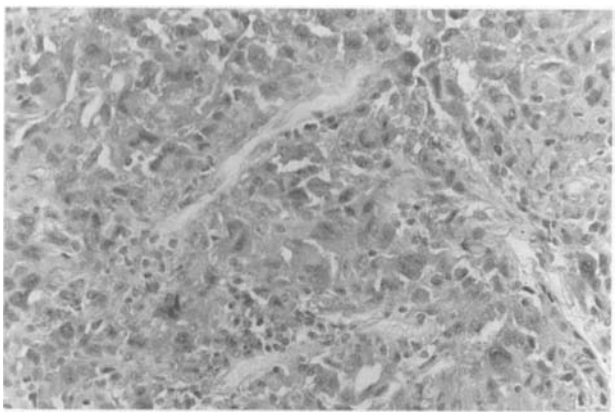

FIG. 3
Metastatic melanoma of tonsil (S100 stain; ×80).

Discussion

Malignant melanomas compromise approximately 1.5 per cent of malignancies and 20 per cent of these involve the head and neck region (Ramamurthy *et al.*, 1995). The tonsil and tongue are the main sites involved, accounting for over half of the reported cases (Cauchois *et al.*, 1993). The first recorded case of tonsillar metastasis from cutaneous malignant melanoma was in 1912 by Schmidt (Sellars, 1971). Since then 23 cases of tonsil metastasis from a cutaneous malignant lesion have been reported. The other reported sites include the nasopharynx, larynx, lip, pharyngeal wall, gingiva, nasal cavity, pyriform sinus, palate and maxillary sinus (Figure 4). In a series published by Henderson *et al.* (1986) pain was the commonest symptom followed by dysphagia.

Both primary and metastatic malignant melanoma of the tonsil are rare and it is important to differentiate between them. Primary mucosal melanoma is commoner than metastatic disease and has a different site of predilection. After the oral cavity, the nasal cavity followed by the paranasal sinuses are the commonest sites (Myers *et al.*, 1983). This is in contrast to that of metastatic mucosal melanoma. Distinguishing between primary and metastatic mucosal melanoma can be difficult and detailed histological examination is required. A history of previous malignant melanoma is helpful but multiple primary lesions may occur. Melanocytes are normally present in head and neck mucosal surfaces. The most important histological pointer of a primary tumour is the presence of an intraepithelial neoplastic component (junctional activity) in the overlying of adjacent lateral mucosa (Xavier *et al.*, 1996).

However, Kornberg *et al.* (1978) have described metastatic malignant melanoma which showed epithial tropism. Metastatic malignant melanoma is typically covered by an intact mucosal layer (Henderson *et al.*, 1986; Cauchois *et al*, 1993). Furthermore, surface mucosa may be denuded by necrosis and ulceration and thus devoid of junctional changes. Henderson *et al.* (1986) also noted that the identification of junctional change was dependent not only on the extent of ulceration but also on the amount of tissue submitted and the number of sections examined. Malignant melanoma metastasizes via lymphatic and vascular channels involving regional lymph nodes early on in the disease. Spread, via the systemic circulation or Batson's

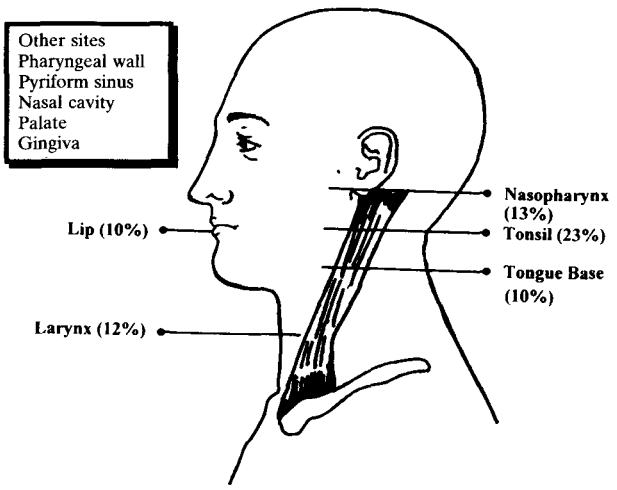

FIG. 4
Anatomical sites of melanoma metastases to the upper aerodigestive tract.

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paravertebral venous plexus (low pressure system allowing retrograde spread) may account for involvement of the tonsillar region.

If a metastatic tonsillar malignant melanoma is discovered, it is essential to make a careful clinical search for the primary lesion. The appearance of metastasis in the upper aerodigestive tract usually heralds widespread dissemination of the melanoma and a poor prognosis. Follow-up of these patients should include a thorough clinical examination of the upper aerodigestive tracts (Henderson *et al.*, 1986). This is well illustrated in this case by the fact that a further metastatic lesion presented in the contralateral tonsil some three months after excision of the initial tonsillar lesion. Interestingly, removal of the tonsil in our case altered the diagnosis and management of the patient's cutaneous elbow lesion. The presence of a synchronous primary breast tumour or the very unusual histological appearances of the limited elbow punch biopsy may have misled our pathologists in their examination of the right elbow specimen. It was following the histopathological examination of the tonsillar specimen, that our pathologists reviewed the elbow lesion using specific staining techniques to confirm malignant melanoma.

Treatment is aimed at local control of the disease and is primarily surgical. Carbon dioxide lasers may be used to selectively vaporize metastatic mucosal lesions. Radiotherapy also has a role to play, as illustrated in this case to palliate metastatic nodal involvement where diffuse systemic metastases exist. In the case of primary malignant melanoma with local neck disease neck dissection is preferred. This has not to our knowledge been done in cases of metastatic tonsillar malignant melanoma. Long-term follow-up is needed for these patients but the prognosis is poor.

Most melanomas have a predictable prognosis which is best estimated according to the Breslow thickness of the primary lesion and the presence of disseminated metastasis. Spontaneous regression of metastatic malignant melanoma may occur although it is a relatively rare event with only 46 cases reported in the English-language literature (Avril *et al.*, 1992; Shai *et al.*, 1994). However, spontaneous regression occurs more frequently in lesions of the trunk than the head, neck and extremities (Kelly *et al.*, 1985) and there have been no reports of spontaneous regression of lesions in the upper aerodigestive tract. The mechanism of spontaneous regression is unclear but has been attributed to complex immunological mechanisms. Many aspects of both the initial presentation and subsequent course of both the melanoma and breast carcinoma behaviour suggest sophisticated, as yet undiscovered interplay of tumour, treatment modalities and host defences. One could speculate that chemotherapy for the breast carcinoma in some way weakened the host defence immunological mechanisms allowing the malignant melanoma to flourish while resolving the breast cancer. On completion of chemotherapy the melanoma metastases ceased to appear but the breast carcinoma advanced once more.

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Address for correspondence:
Mr S. Sood,
Department of Otolaryngology,
Huddersfield Royal Infirmary,
Lindley,
Huddersfield, HD3 3EA
West Yorkshire