Tyrosine crystals in salivary gland tumours

The interesting paper by Thomas and Hutt has drawn attention to a less familiar feature of some salivary gland tumours, particularly pleomorphic adenomas. Tyrosine crystals have been occasionally reported in salivary gland tumours. There seems to be no similar reported observation of tyrosine deposits in a ceruminous gland tumour of the external auditory meatus and the present case report might be of some interest both by its rarity and because it has caused some diagnostic difficulty.

The patient was a fit and healthy man aged 42 years who presented with a smooth lobulated tumour in the right external auditory meatus, which was excised. The patient, an itinerant Irish labourer, could not be followed further. Microscopy of the neoplasm showed some unusual features and, in particular, the presence of crystalline material caused diagnostic problems.

The late DA Osborn diagnosed a ceruminous gland tumour of adenocystic or cribriform pattern and compared the crystalline deposits with the 'corps oviforms' described by Robin in glandular tumours. Further revision of the sections has identified the crystalline deposits as an example, not previously observed, of tyrosine crystal deposition in a ceruminous gland tumour.

Microscopy shows details of randomly distributed crystalline deposits surrounded by myoepithelial cells. The needle-shaped individual crystals can be clearly seen forming sheaves and flower-like petals best demonstrated in sections stained by van Gieson's stain (Figure). Under polarised light the deposits were birefringent and displayed Maltese crosses. The surface was covered by squamous epithelium and there were ceruminous glands underneath.

Thackray and Lucas described these rare crystalline deposits in five pleomorphic adenomas of the parotid gland; four in black patients and one in a white person. Thomas and Hutt have confirmed the greater frequency in black patients. Nochomovitz and Kahn found six cases in a series of 121 pleomorphic salivary gland tumours seen at the University of Cape Town in 20 years but do not mention the race of the patients affected. Our patient, the first patient in whom this feature has been noted was white.

Osborn described similar tyrosine-like inclusions as the 'corps oviforms' of Robin in a pleomorphic adenoma of the soft palate in a 34-year-old white man and in a cribriform adenocarcinoma of the lachrymal gland in a 32-year-old white woman.

Some tumours and normal salivary glands are known to excrete tyrosine, an amino acid playing a significant role in melanin metabolism. Nevertheless the effect or cause of the tyrosine deposits in glandular tumours has remained obscure. It ought to be better known in view of the diagnostic difficulty that may arise.

Multiple flower-shaped tyrosine crystals surrounded by myoepithelial cells deposited in a ceruminous gland tumour. van Gieson's stain (original magnification × 566)

References
3. Thackray AC, Lucas RB. Tumours of the major salivary glands. Washington DC, AFIP 1974; Fase 32.


Like wine, some books are to be consumed from cover to cover, while others are for the connoisseur alone to savour and digest over a period of time. This book falls into the latter category representing as it does...