

A granular cell tumour of the digital nerve – An unusual occurrence

MM Al-Qattan MB BS FRCSC, T Born MD, HG Thomson MD MS FRCSC FACS, LE Becker MD FRCPC
*Division of Plastic Surgery, and the Departments of Pathology and Paediatrics, The Hospital for Sick
Children, University of Toronto, Toronto, Ontario*

MM Al-Qattan, T Born, HG Thomson, LE Becker. A granular cell tumour of the digital nerve - An unusual occurrence. Can J Plast Surg 1994;2(4):177-178. Granular cell tumours most frequently occur in the head and neck. Granular cell tumours of peripheral nerves are rare and, to our knowledge, have not been previously described involving digital nerves. A case of a benign granular cell tumour of the ulnar digital nerve of the little finger is described along with a review of granular cell tumours of the hand.

Key Words: Granular cell tumour, Hand, Nerve

Tumeur à cellules géantes du nerf digital : Occurrence inhabituelle

RÉSUMÉ : Les tumeurs à cellules géantes surviennent le plus fréquemment au niveau de la tête et du cou. De telles tumeurs au niveau des nerfs périphériques sont rares et, à notre connaissance, n'avaient encore jamais été décrites au niveau des nerfs digitaux. Un cas de tumeur bénigne du nerf digital cubital du petit doigt est décrit et les tumeurs à cellules géantes de la main sont passées en revue.

There are two distinct types of granular cell tumours. The first is the congenital gingival granular cell tumour (congenital epulis) which is a rare benign tumour of the anterior alveolar ridge of newborn infants (1).

The second is the acquired granular cell tumour which affects a wide variety of visceral and cutaneous sites, but most frequently occurs in the tongue (2). The predominant occurrence in the tongue led many to believe that the tumour arises from muscle cells and hence the tumour has been known as 'granular cell myoblastoma' for many years. However, more recent evidence indicated Schwann cell origin and the term 'granular cell Schwannoma' has been suggested by Fisher and Wechsler (3). Acquired granular cell tumours of various visceral and cutaneous sites stain positive with S-100 protein which confirms the neural origin of these tumours.

CASE REPORT

A 12-year-old, right-handed, female student was seen with a one-year history of a painful mass in the ulnar side of the left little finger. There was no history of trauma or other skin

lesions. Examination revealed a tender 3x4 mm subcutaneous mass overlying the ulnar digital nerve of the little finger (Figure 1). The mass was mobile and distinct from the overlying normal appearing skin. No Tinel's sign could be elicited on percussion of the mass and the finger had normal range of movement and sensibility. A preoperative diagnosis of Schwannoma or neurofibroma was made. Intraoperatively, a well-defined firm yellow 3x4 mm mass was found to arise from a small branch of the ulnar digital nerve (Figure 2).

Under magnification, the unifascicular nerve branch was dissected from the main digital nerve and complete resection was performed. Histologically, the tumour was found to be a benign granular cell tumour (Figure 3) and stained positive with S-100 protein. Postoperatively, the patient had complete relief of symptoms and normal finger sensibility.

DISCUSSION

Acquired granular cell tumours of the hand are rare and usually present as single or multiple subcutaneous nodules (4-6). One case of benign granular cell tumour affecting the palmar cutaneous branch of the median nerve has been described (7). The tumour in that case infiltrated the nerve and the palmar cutaneous nerve was resected resulting in an anaesthetic area in the thenar skin. In our case, the tumour affected a unifascicular branch of the ulnar digital nerve of the little finger and preservation of the main digital nerve and

Correspondence and reprints: Dr HG Thomson, The Hospital for Sick Children, Suite 1524-555 University Avenue, Toronto, Ontario M5G 1X8. Telephone (416) 813-6446, Fax (416) 813-6147.

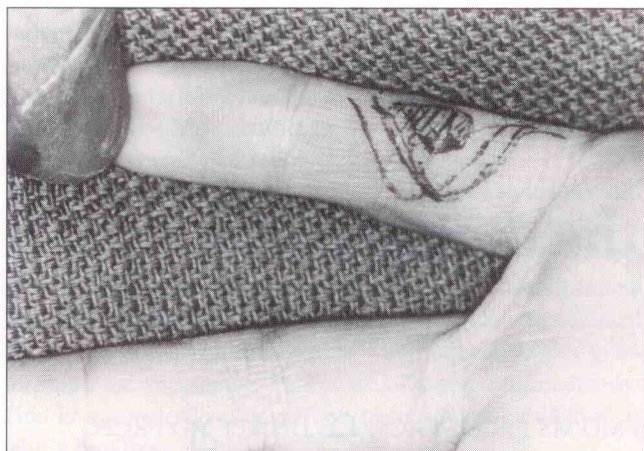


Figure 1 A 12-year-old girl presenting with a tender mass (shaded area) overlying the ulnar digital nerve of the left little finger

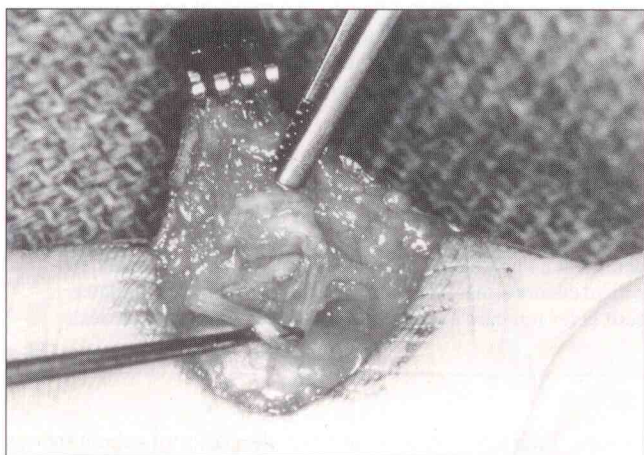


Figure 2 Tumour mass was found to arise from a unifascicular branch of the ulnar digital nerve (the hook is around the main digital nerve)

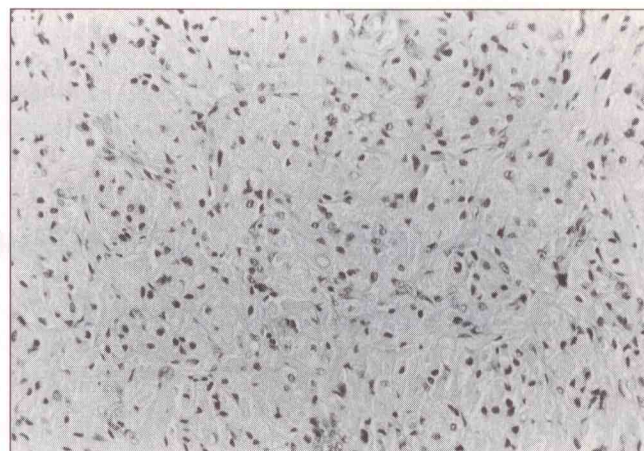


Figure 3 Microscopic examination showed uniform cells with granular cytoplasm consistent with granular cell tumour (Hematoxylin and eosin stain, original magnification x200)

finger sensibility was possible after resection. Our intraoperative findings led us to suspect an isolated neurofibroma or Schwannoma. Microscopically, however, it is easy to differentiate between these and granular cell tumours (7). Complete excision is the treatment of choice because local recurrence of benign granular cell tumours has been reported when tumour was left behind at the surgical margins (2).

Malignant granular cell tumours of peripheral nerves are extremely rare (8,9). Large size, rapid growth, soft tissue invasion, atypia and mitoses are the hallmarks of the malignant form of this tumour which generally carry a poor prognosis (8,9).

Granular cell tumours should be included in the differential diagnosis of tumours of the hand.

REFERENCES

1. Zuker RM, Buenechea R. Congenital epulis: Review of the literature and case report. *J Oral Maxillofac Surg* 1993;51:1040-3.
2. Vance III SF, Hudson Jr RP. Granular cell myoblastoma. Clinicopathologic study of forty-two patients. *Am J Clin Pathol* 1969;52:208-11.
3. Fisher ER, Wechsler H. Granular cell myoblastoma - A misnomer. Electron microscopic and histochemical evidence concerning its Schwann cell derivation and nature (granular cell Schwannoma). *Cancer* 1962;15:936-54.
4. Garancis JC, Komorowski RA, Kuzman JF. Granular cell myoblastoma. *Cancer* 1970;25:512-50.
5. Kucan JO, Hagstrom WJ, Soltani K, Parsons RW. Granular cell tumour. *Ann Plast Surg* 1982;9:409-12.
6. Maher DP. Granular cell tumor in the hand. *J Hand Surg* 1987;12A:800-3.
7. Condit DP, Poschron MD. Granular cell tumor of the palmar cutaneous branch of the median nerve. *J Hand Surg* 1991;16A:71-5.
8. Usui M, Ishii S, Yamawaki S, Sasaki T, Minami A, Hizawa K. Malignant granular cell tumor of the radial nerve. An autopsy observation with electron microscopic and tissue culture studies. *Cancer* 1977;39:1547-55.
9. Shimamura K, Osamura RY, Ueyama Y, et al. Malignant granular cell tumor of the right sciatic nerve. Report of an autopsy case with electron microscopic, immunohistochemical and enzyme histochemical studies. *Cancer* 1984;53:524-9.