

Case Report

Granular cell tumour: a rare cutaneous tumour presenting as a skin-coloured nodule on the neck

顆粒細胞瘤：罕見的皮膚腫瘤，表現為頸部的皮膚色結節

YH Chan 陳耀海, WYM Tang 鄧旭明, WY Lam 林永賢

A 65-year-old Chinese lady presented with a skin-coloured firm non-tender dermal nodule with overlying red hue measuring 1.5 cm in diameter over left side of neck. The diagnosis of granular cell tumour was made based on clinicopathological findings. Excision was complete and there was no recurrence at one-year follow-up.

患者 65 歲，中國女性。首發表現為左側頸部無痛、稍硬、表面略紅、直徑 1.5 釐米的皮膚顏色皮內結節。經臨床及病理學診斷為顆粒細胞瘤。切除完整，術後隨診 1 年無復發。

Keywords: Granular cell tumour

關鍵詞：顆粒細胞瘤

Introduction

Granular cell tumour (GCT) is a rare tumour which may occur on skin, tongue and internal organs.

Social Hygiene Service, Department of Health, Hong Kong

YH Chan, MBBS, MRCP(UK)
WYM Tang, FHKAM(Med), FRCP(Edin)

Department of Pathology, Tuen Mun Hospital, Hong Kong

WY Lam, FHKAM(Pathology)

Correspondence to: Dr. YH Chan

Yau Ma Tei Dermatology Clinic, 12/F, Yau Ma Tei Specialist Clinic, 143 Battery Street, Kowloon, Hong Kong

Histological findings depend on the stages of the disease. Early findings include lymphohistiocytic, plasma cell and neutrophilic infiltrate around hair follicles. This may be followed by granuloma formation and finally fibrosis with resulting scars. We report a 65-year-old Chinese lady with GCT.

Case report

A 65-year-old Chinese lady presented with a nodule over left neck for one year. She had diabetes mellitus and hypertension. There was no history of preceding trauma to her neck. The nodule was largely asymptomatic but increased in size gradually.

Examination showed a solitary skin-coloured nodule over her left neck measuring 1.5 cm in diameter (Figure 1). The nodule was nontender with smooth surface. It was mobile and not attached to the underlying muscle. There was no cervical lymphadenopathy. The rest of the physical examination was unremarkable. The clinical differential diagnoses include pilomatrixoma, granular cell tumour, epidermoid cyst and dermoid cyst. The nodule was completely excised. Histopathology showed aggregates of granular cells with round nuclei, inconspicuous nucleoli and

abundant eosinophilic granular cytoplasm and absence of marked nuclear pleomorphism or mitoses. The cytoplasmic granules stained positively with PAS and S-100 protein. The clinicopathological features were compatible with a benign GCT (Figures 2-4).

Discussion

Granular cell tumour (GCT) was first described by Abrikossov in 1926 as granular cell



Figure 1. A solitary skin-coloured nodule with overlying red hue over left side of neck.

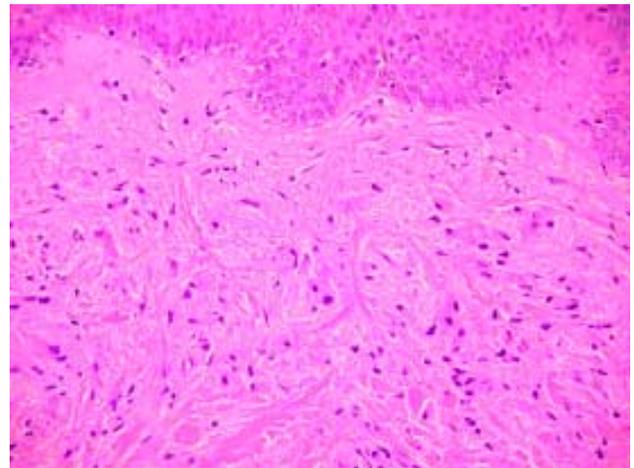


Figure 3. The tumour cells are polygonal with characteristic eosinophilic granular cytoplasm and small round nuclei. (H&E Original magnification x100)

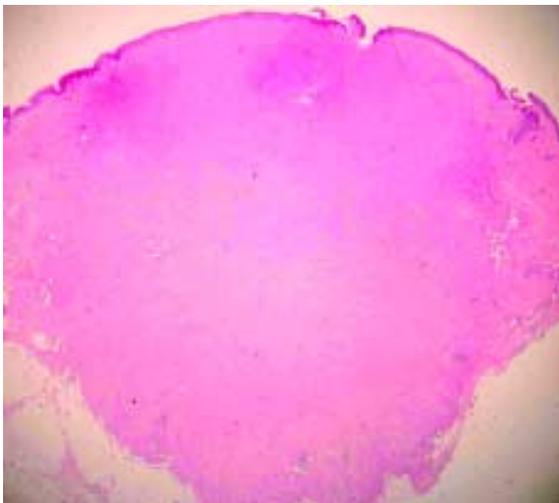


Figure 2. There is a circumscribed proliferation of eosinophilic cells in the dermis extending into the superficial subcutis. (H&E Original magnification x 10)

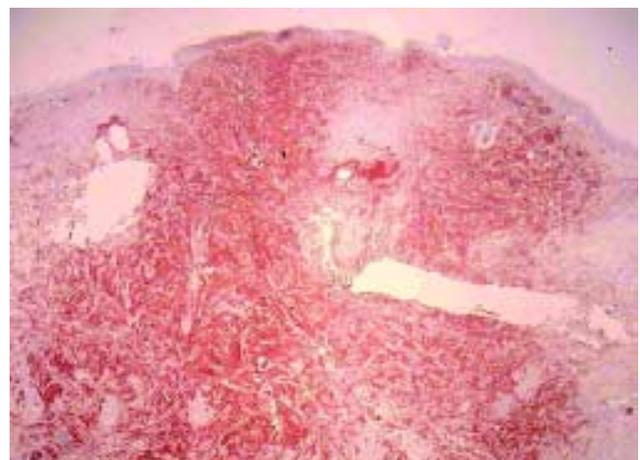


Figure 4. The neoplastic cells characteristically reactive strongly with Anti-S100 protein. (anti-S100 Original magnification x 10)

myoblastoma.¹ GCT has a female predominance of 2.4 to 1 and is more common in the Black. The majority of GCT occurred in the head and neck region. Oral cavity is the commonest site (70%).² The remaining cases occurred in internal organs such as oesophagus, stomach, bladder, sigmoid colon, bronchus, pituitary gland, thyroid gland, pancreatic duct and biliary tree.³⁻⁹ The average age of onset is 50 but cases affecting adolescent and elderly have been reported.¹⁰

GCT was initially thought to originate from skeletal muscle but later confirmed to arise from Schwann cells. It usually presents as asymptomatic (occasionally tender or pruritic) slow growing skin-coloured or brownish red firm dermal or subcutaneous nodule with smooth surface. GCT is usually solitary but can be multiple in 5 to 15% of cases. GCT is an extremely rare tumour in Chinese and most GCT cases reported locally occurred in the mouth. To the best of our knowledge, this is the first report on cutaneous GCT in Hong Kong.

The majority of GCT is benign and malignant form only accounts for 1 to 2%. A large size (more than 4 cm), rapid growth, presence of ulceration, associated lymphadenopathy or evidence of metastasis suggests a malignant GCT.¹¹⁻¹³ Clinical differential diagnoses of GCT include dermatofibroma, adnexal tumours, compound melanocytic naevi and seborrhoeic keratosis.

Histologically, GCT is usually an ill defined, non-encapsulated nodule composed of large, polyhedral cells with distinct cell borders and small round dark nuclei. The cells are large with pale eosinophilic cytoplasm filled with numerous coarse eosinophilic granules arranged in cords and sheets throughout the dermis. The tumour cells stain positively for S-100 protein, CD57, neuron-specific enolase, and NK1-C3 in almost all cases. Hyperkeratosis and acanthosis to the degree of pseudoepitheliomatous hyperplasia may be present and can mimic squamous cell carcinoma. Malignant GCT is suggested by the presence of

necrosis, spindle cell morphology, vesicular nuclei with large nucleoli, increased mitotic activity (more than two mitoses/10HPF at 200X magnification), high nuclear to cytoplasmic ratio and pleomorphism.^{12,14} Histological differential diagnoses of GCT include schwannoma, neurofibroma, squamous cell carcinoma, leiomyoma, atypical fibroxanthoma and granular cell basal cell carcinoma.

The first line treatment for GCT is surgical excision of the tumour with the overlying mucosa and underlying periosteum. Local lymph node dissection is needed in cases of malignant GCT. Mohs micrographic surgery with immunohistochemical stains on frozen sections is useful for GCT in critical locations where maximum tissue preservation is desired.¹⁵ Radiotherapy and chemotherapy had been used in the treatment of malignant GCT but results were disappointing. The reported recurrence rate for GCT ranged from 2% to 50% depending on whether a clear margin had been obtained during surgical excision.

References

1. Abrikossoff AI. Uber Myome, ausgehend von der quergestreifter willknerlicher Muskulatur. *Virchow Arch Path Anat* 1926;260:215-33.
2. Becelli R, Perugini M, Gasparini G, Cassoni A, Fabiani F. Abrikossoff's tumor. *J Craniofac Surg* 2001;12:78-81.
3. Curtis BV, Calcaterra TC, Coulson WF. Multiple granular cell tumor: a case report and review of the literature. *Head Neck* 1997;19:634-7.
4. Gross VL, Lynfield Y. Multiple cutaneous granular cell tumors: a case report and review of the literature. *Cutis* 2002;69:343-6.
5. Martin RC, Stulc JP. Multifocal granular cell tumor of the biliary tree: case report and review. *Gastrointest Endosc* 2000;51:238-40.
6. Paposki SM, Owen DA. Granular cell tumor of the thyroid. *Arch Pathol Lab Med* 2001;125:544-6.
7. Bin-Sagheer ST, Brady PG, Brantley S, Albrink M. Granular cell tumor of the pancreas: presentation with pancreatic duct obstruction. *J Clin Gastroenterol* 2002;35:412-3.
8. Yoshida T, Hirai S, Horii Y, Yamauchi T. Granular cell tumor of the urinary bladder. *Int J Urol* 2001;8:29-31.

9. Endo S, Hirasaki S, Doi T, Endo H, Nishina T, Moriwaki T, et al. Granular cell tumor occurring in the sigmoid colon treated by endoscopic mucosal resection using a transparent cap (EMR-C). *J Gastroenterol* 2003;38:385-9.
10. Dorta S, Sanchez R, Garcia-Bustinduy M, Guimera F, Saez M, Noda A, et al. Multiple granular cell tumour in a teenager. *Br J Dermatol* 2000;143:906-7.
11. Cruz-Mojarrieta J, Navarro S, Gomez-Cabrera E, Perez-Pena L, Soriano P, Peydro-Oyala A, et al. Malignant granular cell tumor of soft tissues: a study of two new cases. *Int J Surg Pathol* 2001;9:255-9.
12. Budino-Carbonero S, Navarro-Vergara P, Rodriguez-Ruiz JA, Modelo-Sanchez A, Torres-Garzon L, Rendon-Infante JI, et al. Granular cell tumors: Review of the parameters determining possible malignancy. *Med Oral* 2003;8:294-8.
13. Urabe A, Imayama S, Yasumoto S, Nakayama J, Hori Y. Malignant granular cell tumor. *J Dermatol* 1991;18:161-6.
14. Miracco C, Andreassi A, Laurini L, De Santi MM, Taddeucci P, Tosi P. Granular cell tumour with histological signs of malignancy: report of a case and comparison with 10 benign and 4 atypical cases. *Br J Dermatol* 1999;141:573-5.
15. Smith SB, Farley MF, Albertini JG, Elston DM. Mohs micrographic surgery for granular cell tumor using S-100 immunostain. *Dermatol Surg* 2002;28:1076-8.