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Case Report

A Malignant Phaeochromocytoma, the Largest Reported from Asia: A Case Report

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Abstract

A large non functioning malignant phaeochromocytoma with extensive lymph node metastases in a 65-year-old female is reported. An incidental colloid nodule of the thyroid was found. This is the largest such tumour reported from the Asian region.

Keywords: *Malignant Phaeochromocytoma*

INTRODUCTION

Phaeochromocytomas are rare neuroendocrine tumours derived from chromaffin cells of the adrenal medulla or sympathetic ganglia that secrete catecholamines, with 0.1% prevalence and 10% malignant potential[1]. Paroxysmal or sustained hypertension is commonly associated, while episodic headache, palpitations, blurred vision, excessive truncal sweating and dizziness may also occur. The typical clinical picture may not be present, especially when the tumours are large (>5.5 cm in size) as they are generally nonfunctional[2]. Histological features have a limited role in determining malignancy. The presence of metastases in lymph nodes, bones, lungs, liver etc and local invasion being the only reliable indicators of malignancy[1,3]. Phaeochromocytomas vary in size with an average diameter of 5 to 6 cm while the largest reported was 45 x 25 cm in size[4]. We report a patient with a clinically silent giant malignant phaeochromocytoma, to the best of our knowledge, the sixth largest published in the current literature and the largest reported in Asia.

CASE REPORT

A 65-year-old previously healthy female presented with a large abdominal mass, multiple neck lumps and loss of appetite and weight of one-year duration. She did not complain of chest pain, headache or palpitations. Her blood pressure was 120/70Hgmm. Abdominal examination revealed a large intra-abdominal, firm, non ballotable mass occupying the right upper and lower quadrants. Matted left cervical lymphadenopathy and a dominant nodule in a multinodular goitre were noted.

The thyroid function tests, Vanillyl Mandellic Acid (VMA) levels and other biochemical parameters were normal. Cytology of the thyroid nodule showed a benign lesion. Biopsy of the cervical lymph nodes showed metastatic tumour deposits. CECT scan of neck, chest, abdomen and pelvis demonstrated a well-defined heterogeneously contrast enhancing mass with central necrosis in the right side of the abdomen measuring 26cm x 25cm x 11cm (Figure 1). The right kidney was displaced towards the left and the right adrenal gland was not visualized. Multiple enlarged anterior mediastinal, left deep cervical and posterior triangle lymph nodes were identified. There were no lesions in the liver or lungs. The impression on CECT

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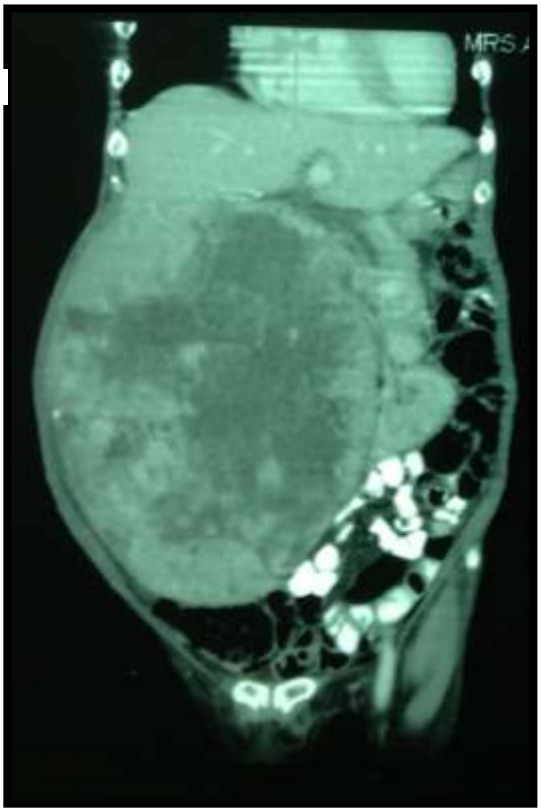

Figure 1: Large mass on CECT scan (coronal section)

was a gastrointestinal stromal tumour (GIST) probably arising from the second part of the duodenum with lymph node metastases.

Exploratory laparotomy revealed a right-sided large encapsulated retroperitoneal tumour weighing 3800g (Figure 2). The tissue of origin was unclear. The tumour was excised without capsular breach. There were no blood pressure fluctuations or complication during surgery and the post-operative period was uneventful.

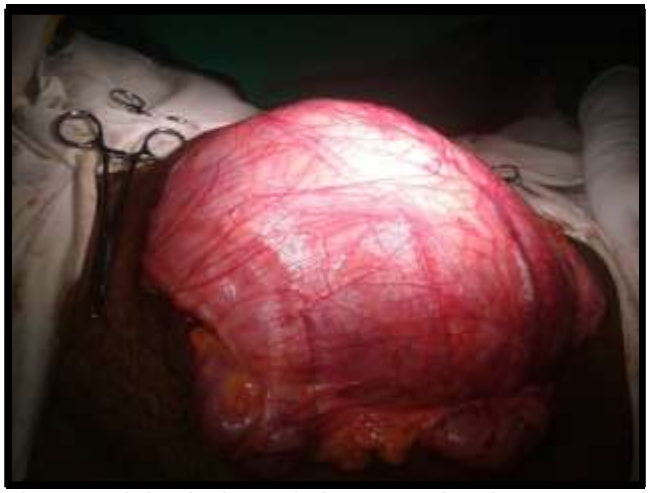

Figure 2: Abdominal mass in intraoperative view

Macroscopically the tumour was relatively circumscribed and measured 26cm x 25cm x 11cm. The cut surface showed a variegated appearance with foci of necrosis and haemorrhage. Microscopy revealed an encapsulated mass composed of relatively monomorphic cells arranged as cell nests with intervening delicate fibro-vascular connective tissue (Figure 3). Some cells contained intracytoplasmic haemosiderin granules as demonstrated with the Perls Prussian blue stain (Figure 4). No lymphovascular tumour emboli were seen. Immunohistochemistry demonstrated positivity for Vimentin (Figure 5), focal positivity for Chromogranin (Figure 6) and negativity for PCK, LCA, Synaptophysin, EMA, CEA, CK7, CK20, CD 117, CD 10, Melan A, HMB 45 and S 100. These appearances were those of a phaeochromocytoma. The cervical lymph nodes showed metastatic deposits of a malignancy with similar immunohistochemical features as the primary tumour, enabling a conclusion of a malignant phaeochromocytoma (Figure 7).

Total thyroidectomy with left cervical block dissection was performed as a second surgery. Histology confirmed the thyroid nodule to be a colloid nodule. There was no evidence of a medullary carcinoma of thyroid or parathyroid adenoma. Re-evaluation of the patient excluded the possibilities of associated hereditary forms of phaeochromocytoma.

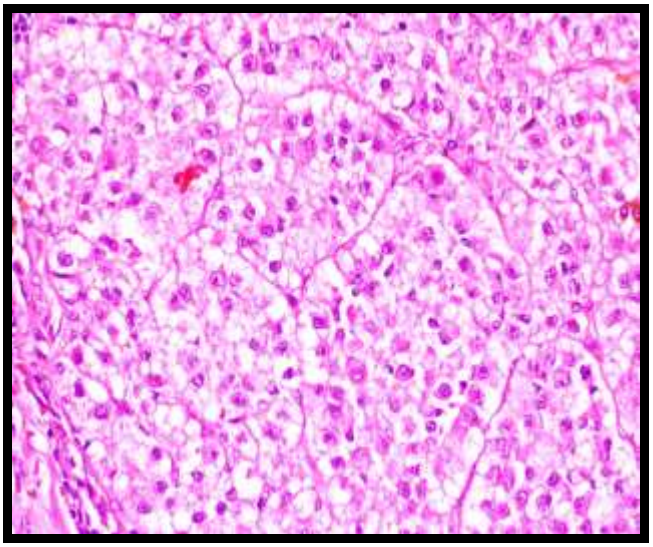

Figure 3: Primary tumour- Haematoxylin & Eosin: ×400

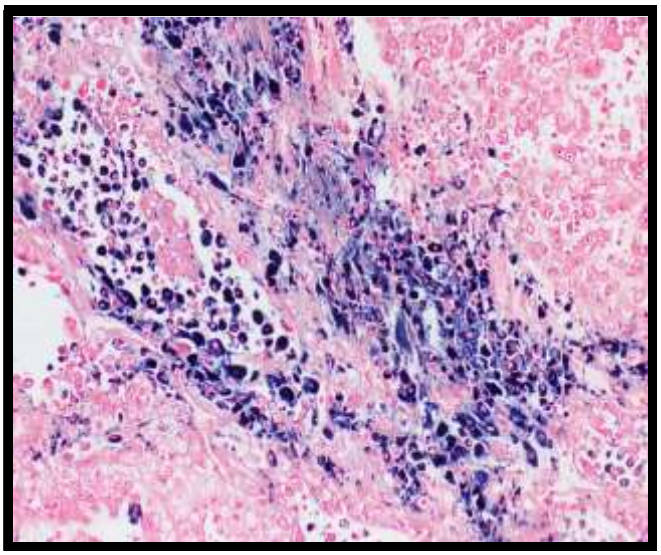

Figure 4: Perls stain: ×200

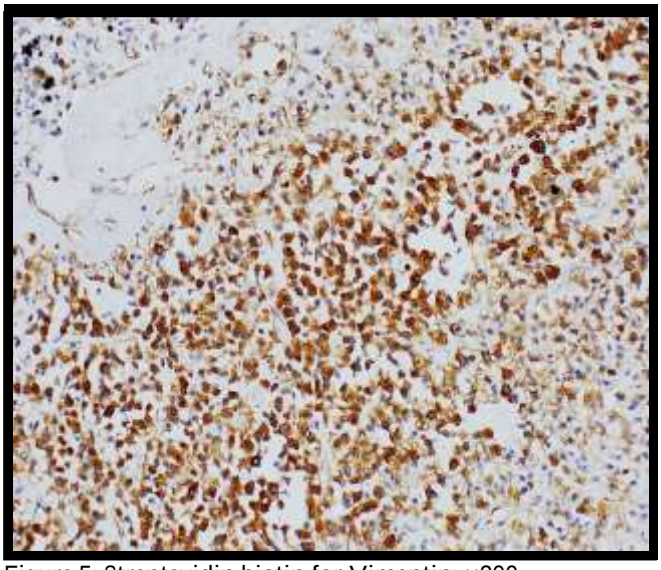

Figure 5: Streptavidin biotin for Vimentin: ×200

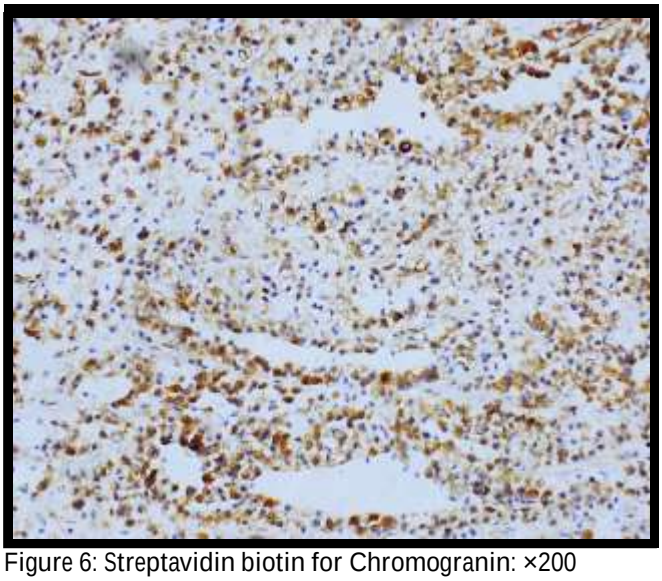

Figure 6: Streptavidin biotin for Chromogranin: ×200

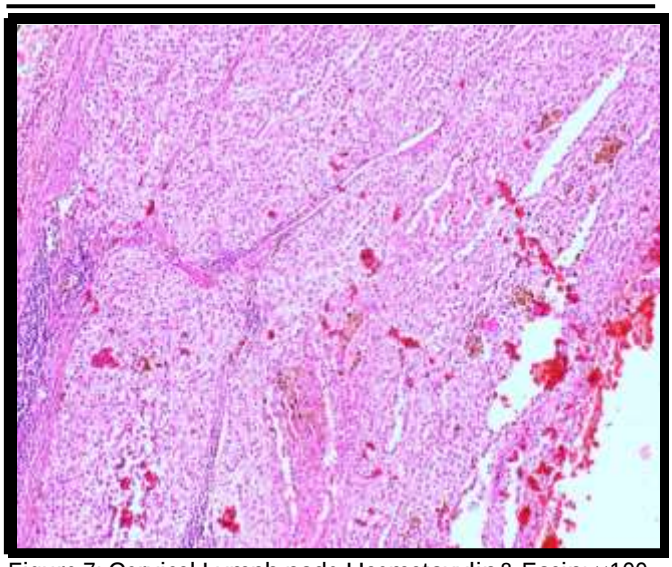

Figure 7: Cervical Lymph node Haematoxylin& Eosin: ×100

DISCUSSION

Giant phaeochromocytomas more than 20cm in diameter, are very rare entities with limited numbers of cases reported in the literature (Table 1). These tumours may present without the classical symptoms and are known as 'silent' phaeochromocytomas[2].

Twenty-four-hour urinary VMA level is commonly used as a screening test to detect phaeochromocytoma but has a low sensitivity (64%) as demonstrated by the normal values seen in our case[4]. Measurements of catecholamine levels and fractionated metanephrine levels in serum and urine has a sensitivity and specificity of 98%[1,5]. Imaging by CT or MRI helps in localization of the tumour with a sensitivity of 90% to 100% where PET scan has better image resolution[6]. In the present case the CECT was non-conclusive, and instead suspected a metastatic GIST arising from the duodenum.

There is no definite histological or cytological feature that can conclusively differentiate between benign and malignant phaeochromocytomas in the absence of metastases or locoregional invasion[3]. Phaeochromocytoma of the Adrenal gland Scaled Score (PASS) can be used to determine the malignant potential with a score ≥ 4 concerning for malignancy. However, high inter-observer and intra-observer variations are limitations of the PASS system. The size of a primary phaeochromocytoma is associated with development of metastatic disease. In our case, the tumour had metastasized to lymph nodes. Complete surgical excision is the gold standard of treatment, which has a 5-year survival rates of 95% for benign and less than 50% for malignant phaeochromocytomas[1,3].

Table 1 : Largest 10 phaeochromocytomas reported in the literature (descending order).

	Author/ Year	Country	Gender	Size	Weight
01	Grissom et al.[4] (1979)	USA	Female	45 x 25 cm	2100g
02	Costa et al.[7] (2008)	Brazil	Male	30 cm	
03	Basso et al.[8](1996)	Italy	Male	29 × 21 × 12 cm	4050g
04	Karumanchery et al.[9] (2012)	England	Female	28 × 16 × 13 cm	2300g
05	Ravi Maharaj et al.[3](2017)	Trinidad & Tobago	Female	27 × 18 × 12 cm	3315g
06	Current case	Sri Lanka	Female	26 x 25 x 11cm	3800g
07	Gupta et al.[10] (2016)	India	Female	25 × 17 × 15 cm	2750g
08	Okuda et al.[11] (2013)	Japan	Female	24 × 23 × 16 cm	5900g
09	Suga et al.[12] (2000)	Japan	Male	21 x 13 x 21 cm	3900g
10	Terk et al.[13] (1993)	USA	Male	21 × 20 × 11 cm	2870g

CONCLUSION

We report a case of a 65-year-old female, with a giant silent malignant phaeochromocytoma, the sixth largest reported in literature and the largest reported in Asia. The possibility of phaeochromocytoma should be considered in tumours involving the anatomical region of supra renal glands even though clinical, biochemical or radiological findings are non-conclusive.

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