Parathyroid adenoma causing spontaneous cervical haematoma and vocal cord palsy

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USS Parathyroid

Sestamibi scan

Introduction

Diffuse cervical-mediastinal haematoma attributable to spontaneous rupture of a parathyroid adenoma is an uncommon complication, but unrecognised can have potentially serious sequelae including major haemorrhage, dyspnoea, and death. We present an interesting case of spontaneous rupture of a parathyroid adenoma causing cervical-mediastinal haemorrhage and recurrent laryngeal nerve compression.

Case

We report a case of a 78-year-old lady, with a known history of parathyroid adenoma, presenting with airway compromise.

Our patient had a diagnosis of primary parathyroidism. A large parathyroid adenoma was identified extending to the superior mediastinum, localised to the left, on sestamibi scans and ultrasound. Further CT-imaging was used to visualise the extent of the adenoma and it was found to be 2.6 x 2.0 x 4.5cm (AP x Trans x CC) . Her corrected calcium was 3.22 mmol/L and PTH 45 pmol/L. The patient initially declined surgical excision and was being considered for cinacalcet treatment.

However she presented to the emergency department with sudden onset stridor and hoarse voice, and subsequently developed odynophagia and a left sided neck swelling associated with overlying ecchymosis. Initial blood tests revealed cCa 2.63 mmol/L (2.20 - 2.60) and PTH 23.0 pmol/L (1.60 - 7.20). Flexible nasendoscopy revealed an immobile left vocal cord in the para-median position. Computed Tomography (CT) scanning revealed the parathyroid adenoma at the lower pole of left lobe of thyroid gland and associated haematoma extending to the superior mediastinum, along the course of left recurrent laryngeal nerve. The haematoma resulted from spontaneous rupture of the arterial branch to the parathyroid gland, and had a mass effect causing right tracheal deviation and narrowing and oesophageal compression. The patient underwent an emergency left parathyroidectomy, hemithyroidectomy and evacuation of haematoma. There was an ill-defined and infiltrative appearance of the parathyroid adenoma identified at the time of surgery. Histology revealed a benign adenoma. Thyroid tissue revealed a lymphocytic thyroiditis. Post-operatively the patients' blood work revealed cCa 2.48 and PTH 3.50.

Pre-rupture CT

Post-rupture CT

Literature Review

Table 1. Clinicopathological features in case reports of extracapsular parathyroid hemorrhages					
Author (year)	#	Clinical features	Ca ²⁺ (normal values)	T	Histology (Ø = cm)
Capps R (1934) [2]	1	Weakness, sore throat, cervical swelling/ ecchymosis, dysphagia, dyspnea	NA	5 weeks	Adenoma (Ø = 7)
Berry BE (1974) [3]	1	Weakness, retrosternal pain, signs of superior vena caval compression	NA	1 day	Adenoma (Ø = 5)
Santos GH (1975) [4]	1	Retrosternal pain, dizziness, hypotension, hypercalcemia	NA	1 day	Adenoma (Ø = 8)
Jordan FT (1981) [5]	1	Anterior cervical pain, swelling and ecchymosis, dysphagia	13.3 mg/dL	1 month	Hyperplasia (Ø = 6)
Roma J (1985) [6]	1	Hoarseness, dysphagia, cervical swelling, cervical-thoracic ecchymosis	3.00 mmol/L	1 day	Hyperplasia
Simicic KJ (1989) [7]	1	Painful cervical swelling, dysphagia, dyspnea	4 mmol/L (2.14-2.52)	2 weeks	Adenoma (Ø = 4.5)
Massard JL (1989) [8]	1	Difficulty swallowing, dysphonia, cervical pain, cervical ecchymosis	3.15 mmol/L	10 hours	Adenoma
Hotes LS (1989) [9]	1	Hoarseness, dysphagia, discomfort in the anterior area, ecchymosis	Normal	3 days	Adenoma
Alame A (1990) [10]	1	Difficulty swallowing, dysphonia, cervical-thoracic ecchymosis	2.86 mmol/L	1 day	Adenoma
Manton G (1990) [11]	1	Dysphagia, dyspnea, ecchymosis	2.67 mmol/L	2 days	Adenoma (Ø = 2.5)
Amano Y (1993) [12]	1	Hoarseness, dysphagia, cervical swelling and ecchymosis	Normal	2 days	Adenoma (Ø = 5.6)
Korkis AM (1993) [13]	1	Hoarseness, dysphagia, cervical swelling and cervical-thoracic ecchymosis	11.6 mg/dL	1 day	Adenoma (Ø = 4)
Jougon J (1994) [14]	1	Dysphagia, cervical swelling and cervical-thoracic ecchymosis	2.9 mmol/L	1 day	Adenoma (Ø = 3)
Menegaux F (1997) [15]	1	Cervical pain, dysphagia, dyspnea	2.62 mmol/L	1 day	Adenoma
Hellier WPL (1997) [16]	1	Dysphagia, dysphasia, cervical-thoracic ecchymosis	Elevated	1 day	Adenoma
Ku P (1997) [17]	1	Hoarseness, cervical pain and ecchymosis	3.15 mg/dL	1 day	Adenoma (Ø = 2)
Kihara M (2001) [18]	1	Painful cervical swelling and cervical-thoracic ecchymosis	Normal	1 month	Adenoma (Ø = 2)
Kozlow (2001) [19]	1	Dysphagia, odynophagia, cervical swelling	11.3 mg/dL (8.4-10.2)	7 days	Adenoma
Nakajima J (2002) [20]	1	Retrosternal pain, cervical-thoracic ecchymosis	Normal	3 weeks	Adenoma (Ø = 3.5)
Govindaraj S (2003) [21]	1	Hyper-normo-calcemia, right-sided headaches, severe throat pain	13 mg/dL	2 weeks	Adenoma
Taniguchi I (2003) [22]	1	Cervical swelling, pain, dysphagia, cervical-thoracic ecchymosis	NA	1 month	Cyst (Ø = 6)
Maweja S (2003) [23]	2	Painful cervical swelling and cervical-thoracic ecchymosis	2.57; 2.80 mmol/L	2 days	Adenoma
Tonerini M (2004) [24]	1	Painful cervical swelling	NA	1 day	Adenoma
Akimoto T (2005) [25]	1	Left pleural effusion in IPT II at chest X-ray and computed tomography scan	Elevated	1 day	Hyperplasia
Devez A (2006) [1]	2	1. Dysphagia cervical hematoma, hypercalcemia 2. Latero-cervical pain and ecchymosis	2.57 mmol/L	1 week 5 days	1. Adenoma 2. Adenoma
Merante-Boschin I (2009) [1]	1	Painful cervical swelling, dysphonia, dyspnea	3.18 mmol/L (2.10-2.55)	2 days	Adenoma (Ø = 4.0)

Notes: #, number of cases described; [Ca²⁺]: calcium level; T: time of onset; Normal: in the normal range; NA: Not assessed.
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Merante-Boschin I, Fassan M, Pelizzo MR, Ide EC, Rugge M. Neck emergency due to parathyroid adenoma bleeding: a case report. J Med Case Rep. 2009;213:7404

Conclusion

Spontaneous arterial rupture can occur in large parathyroid adenomas. Haematoma can lead to compression symptoms, vocal cord weakness and airway compromise. If the above “red flag” symptoms are present surgical exploration and excision are recommended.