

The anomalous goitre: an unusual presentation of multi-nodular goitre

Introduction

A 39-year-old was diagnosed with multi-nodular goitre during her first pregnancy. Although she had a family history of Graves' disease, thyroid function tests were normal and a fine needle aspiration showed no sinister cause. She remained asymptomatic until 3 years post-partum, when she presented with pain in the left shoulder and arm, and swelling of the left arm. A computed tomography scan of the neck revealed a significantly enlarged thyroid gland causing extensive venous and tracheal compression. She had an urgent total thyroidectomy.

Discussion

To the best of the authors' knowledge there is no reported case of a patient with a goitre presenting with the predominant symptoms of unilateral arm pain, superficial venous dilatation and swelling.

Although one study (Vadasz and Kotsis, 1998) showed that the majority of patients with cervico-mediastinal goitres are symptomatic, it also revealed the predominant symptoms to be respiratory distress and superior vena cava obstruction. The presentation of superior vena cava obstruction can include upper limb swelling, but it is typically just one part of a constellation of symptoms including facial swelling and shortness of breath. Although this patient had swelling of the left upper limb she did not have any other symptoms consistent with superior vena cava obstruction and although she had tracheal narrowing, she did not have symptoms or signs of respiratory distress. Rather, she presented with symptoms and signs

consistent with compression of the veins of the upper limb and the brachial plexus.

Figure 1. Swelling and venous dilatation of the left arm.



In cases where the patient is symptomatic as a result of the mass effect of a goitre, decompressive surgery is mandatory (Chaudhry et al, 2016). As in the case of this patient, it commonly leads to immediate symptomatic relief and improvement in quality of life.

Physiological enlargement of the thyroid gland is common during pregnancy as beta-human chorionic gonadotropin is structurally similar to thyroid-stimulating hormone. It is not uncommon for the normal, physiological changes of pregnancy to reveal pre-existing thyroid pathology (Cignini et al, 2012). What is unusual in this case is that the patient remained asymptomatic throughout

CASE REPORT

A 39-year-old woman was seen at a routine antenatal appointment when she was 6 weeks pregnant with her first child in 2013. She had noticed swelling in her neck consistent with an enlarged thyroid gland. Despite a family history of Graves' disease in a maternal uncle, her thyroid function tests were considered normal for pregnancy and thyroid peroxidase antibodies were negative.

An ultrasound showed multi-cystic changes consistent with a multi-nodular goitre. There was one nodule of 6 x 2.3 cm in the right lobe but there was no evidence of posterior extension or tracheal narrowing. A fine needle aspiration of the large nodule was Thy 2, i.e. benign. She remained asymptomatic and the remainder of her pregnancy was unremarkable.

At 9 weeks post-partum thyroid function tests showed normal free thyroxine and free triiodothyronine levels, with slightly suppressed thyroid-stimulating hormone levels at 0.20 mIU/litre. Neck examination revealed a multi-nodular goitre with no associated lymphadenopathy. She remained asymptomatic, repeat thyroid function tests were normal, and a repeat ultrasound in October 2015 showed a multi-nodular goitre with multiple cystic and spongiform changes, but did not meet criteria for a repeat fine needle aspiration.

In October 2016, 3 years after her initial diagnosis with multi-nodular goitre, she started to experience intense burning pain in

the left shoulder, radiating down the left arm, accompanied by mild swelling and dilatation of the superficial veins in the left arm (Figure 1). An ultrasound scan ruled out axillary vein thrombosis.

Her pain settled briefly, but in January 2017 the intense, burning pain returned in the left shoulder and again radiated down the left arm, this time in the exact distribution of the C7 nerve. In 5–6 weeks the pain had become constant.

She returned to the endocrinology clinic and was clinically noted to have a large goitre.

An urgent computed tomography scan of the neck with contrast showed no thrombosis, but a significantly enlarged thyroid gland causing extensive venous and tracheal compression. The goitre had compressed the trachea; at its narrowest point the coronal width of the trachea measured 3 mm (Figure 2). A repeat fine needle aspiration showed no malignant changes. Surprisingly she had not experienced any respiratory symptoms, aside from mild shortness of breath on exertion which she felt was consistent with a lack of exercise over the previous 6 months. Respiratory function tests were not done as it was not appropriate to delay surgery.

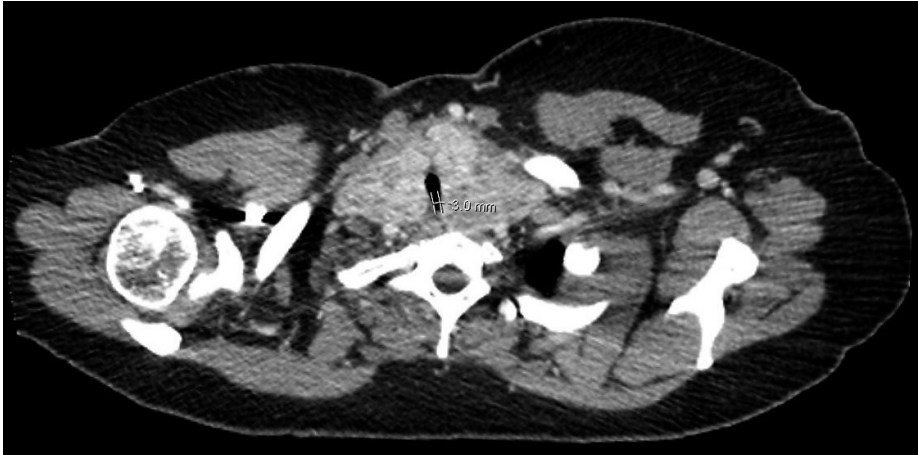
She underwent an urgent total thyroidectomy with no postoperative complications. She is currently taking 100 µg/day of levothyroxine. She was reviewed 2 weeks post-surgery and calcium and parathyroid levels were normal.

Dr Frances Beatty, FY1, Department of Endocrinology and Diabetes, Hillingdon Hospitals NHS Foundation Trust, Uxbridge UB8 3NN

Dr Rajashree Baburaj, Consultant in Endocrinology and Diabetes, Department of Endocrinology and Diabetes, Hillingdon Hospitals NHS Foundation Trust, Uxbridge

Correspondence to: Dr F Beatty (beattyf@tcd.ie)

Figure 2. Tracheal compression caused by mass effect of the goitre (at its narrowest point the coronal width of the trachea measured 3 mm).



pregnancy; her compressive symptoms began 3 years post-partum.

It is possible that this patient had an undiagnosed goitre which was uncovered by the physiological changes of pregnancy; this possibility is strengthened given the family

history of Graves' disease. Nevertheless the timing of the presentation, 3 years post-partum, remains an anomaly. **BJHM**

Chaudhry IU, Cheema AL, AlShamasi Z, Mutairi H (2016) Hoarseness of voice, respiratory distress and dysphagia due to giant primary posterior

LEARNING POINTS

- It is possible for patients diagnosed with a goitre during pregnancy to develop compressive symptoms post-partum.
- Goitre should be excluded in patients presenting with upper limb swelling and/or neuropathic pain.
- Tracheal compression should be excluded in patients presenting with a goitre causing compressive symptoms, even if they are not experiencing respiratory distress.

mediastinal goitre: a rare clinical entity. *BMJ Case Rep* 2016. pii: bcr2016215132. <https://doi.org/10.1136/bcr-2016-215132>.

Cignini P, Cafà EV, Giorlandino C, Capriglione S, Spata A, Dugo N (2012) Thyroid physiology and common diseases in pregnancy: review of literature. *J Prenat Med* 6(4): 64–71.

Vadasz P, Kotsis L (1998) Surgical aspects of 175 mediastinal goiters. *Eur J Cardiothorac Surg* 14(4): 393–397. [https://doi.org/10.1016/S1010-7940\(98\)00204-8](https://doi.org/10.1016/S1010-7940(98)00204-8)

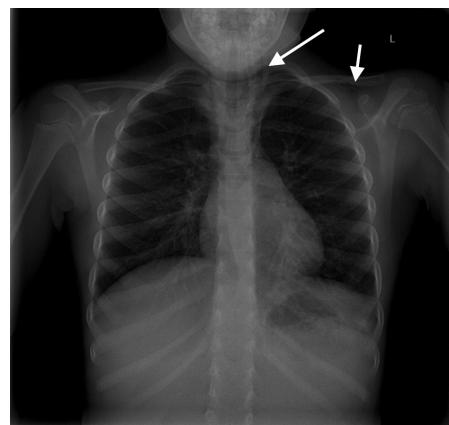
Images in Medicine

An unusual cause of sudden onset shoulder pain in a child

A 6-year-old previously well child presented to the emergency department with a history of sudden onset left shoulder pain. It was not associated with any trauma, injury or infection. However, the patient did have a severe dry cough in the preceding week. Chest X-ray showed a linear gas pattern in the mediastinum and

subcutaneous emphysema in the left shoulder area (*Figure 1*). This case highlights a rarely reported non-traumatic cause of subcutaneous emphysema in a healthy child. The patient was

Figure 1. Chest X-ray showing free air in the subcutaneous area of the left shoulder and around the trachea (arrows) suggestive of surgical emphysema and pneumomediastinum respectively.



treated conservatively with a repeat chest X-ray after 6 weeks showing complete resolution.

Spontaneous non-traumatic pneumothorax, pneumomediastinum and surgical emphysema have all been reported in patients with an underlying history of lung disease like asthma and pneumonia (Wong et al, 2013). It is important to advise young children with underlying lung disease to avoid peak flow measurements until the complete resolution of signs as per British Thoracic Society guidelines (Fields, 2016). The British Thoracic Society also recommends avoidance of scuba diving, Valsalva manoeuvre and aircraft journeys until complete resolution of signs. **BJHM**

Fields KB (2016) Evaluation of the patient with shoulder complaints. www.uptodate.com/contents/evaluation-of-the-patient-with-shoulder-complaints#H12 (accessed 7 November 2017)

Wong KS, Wu HM, Lai SH, Chiu CY (2013) Spontaneous pneumomediastinum: analysis of 87 pediatric patients. *Pediatr Emerg Care* 29(9): 988–991. <https://doi.org/10.1097/PEC.0b013e3182a26a08>

Dr Sohail Ghani, Consultant Paediatrician, Department of Paediatrics, Kings Mill Hospital, Nottinghamshire University Hospitals, Sutton-in-Ashfield, Nottinghamshire

Dr Ambreen Yasin, Core Trainee 1 ACCS Anaesthetics, Department of Emergency Medicine, Kings Mill Hospital, Nottinghamshire University Hospitals, Sutton-in-Ashfield, Nottinghamshire

Correspondence to: Dr S Ghani, Consultant, Department of Paediatrics, Hywel Dda University Health Board, Carmarthen SA31 2AF (sohailghani2001@yahoo.com)