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Spontaneous cervical-mediastinal hematoma caused by hemorrhage into parathyroid adenoma: A clinical case

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ABSTRACT

INTRODUCTION: Spontaneous cervical-mediastinal hematoma caused by extracapsular rupture of parathyroid gland occurs extremely rarely. There are no standard treatment approaches because of the peculiarities of each case.

PRESENTATION OF CASE: We report herewith about a rare case of spontaneous cervical-mediastinal hematoma occurred by hemorrhage in parathyroid adenoma, which was detected in an previously absolutely healthy female patient in the age of 29. This woman was hospitalized in 2 days after the manifestation, complaining about a neck ache. Indirect laryngoscopy: right-side larynx paresis. Blood test: parathyroid hormone 843 pg/ml (norm 15–65), ionized calcium 1.8 mmol/l (norm 0.9–1.1). Positive dynamics was observed throughout 8 days of anti-inflammatory therapy. Symptoms of neck organs compression increased acutely at the 9th day. The patient was operated – hematoma lancing with resection of walls. Histological examination discovered the fragments of parathyroid adenoma in the hematoma's wall. Level of ionized blood calcium got normal approximately in 24 h after the surgery. The patient was examined 6 months after the surgery. The patient had no dysphagia, voice quality was intact, breathing was not restricted. Level of parathyroid hormone in blood got normal.

DISCUSSION: A rareness of this pathology and treatment variability does not allow to choose a unified medical and diagnostic tactics.

CONCLUSION: Our case demonstrates that radical correction of primary hyperparathyroidism by excision of hematoma and its fibrous capsule with preservation of thyroid gland is possible in conditions of tense cervical-mediastinal hematoma with inflammation process in the hemorrhage area.

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1. Introduction

Spontaneous cervical-mediastinal hematoma caused by extracapsular rupture of parathyroid gland occurs extremely rarely. The first occasion of an spontaneous cervical-mediastinal hematoma caused by hemorrhage into parathyroid adenoma was determined during autopsy.¹ It indicates the extreme hazard of this condition. There were 28 reports of individual clinical observations in the PubMed databases until 2009. And 3 more reports during 2010–2013. Clinical presentation of hematoma depends on its localization, dimensions, hemorrhage severity, timing of manifestation and hormonal activity of the parathyroid gland. Differential diagnosis includes acute thyroiditis, hemorrhage into thyroid cysts, descending destructive mediastinitis, aortic dissection. A two-staged clinical presentation is

described in one of the reports.¹ In the treatment of spontaneous cervical-mediastinal hematoma caused by extracapsular rupture of parathyroid gland is used conservative therapy, emptying and drainage of the hematoma, adenectomy, excision of adenoma in combination with hematoma evacuation, excision of the respective lobe of thyroid gland together with the hematoma.

2. Case report

Female patient, age 29, admitted to the hospital in 2 days after the manifestation, complaining about neck pain irradiating into nose, mouth, mostly on the right side, difficulty in swallowing, swollen neck, mostly on the right side. There was no determined prior history of trauma, invasive manipulations or pathology of parathyroid glands. During child years, the patient was observed by endocrinologist due to endemic goiter. During the examination, it was discovered that the thyroid gland was enlarged, the consistency was soft and elastic, moderate pain was felt during palpation. The patient had a low-grade fever.

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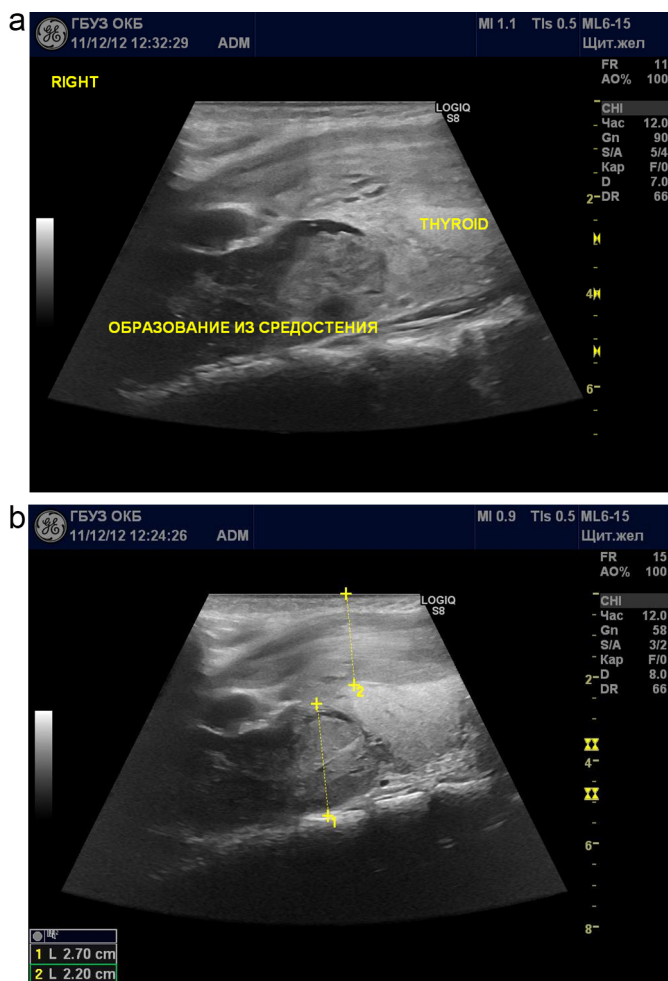


Fig. 1. Transcutaneous echography. Sagittal section. (a) A nonhomogenous structure in cervical-mediastinal area, to the right of the thyroid gland. (b) An isoechoic nonhomogenous structure sized up to 3 cm is adjacent to the posterior surface of thyroid gland, with an apparent capsule (1) (parathyroid gland adenoma with hemorrhage). A hypoechoic to echonegative area spreads from the structure into mediastinal septum and into the anterior neck surface (2) (a cervical-mediastinal hematoma).

Echography of the thyroid gland indicated that the right lobe was enlarged due to an isoechoic area in the lower posterior part, with dimensions of 28 mm × 26 mm × 30 mm. The patient was hospitalized with suspected acute thyroiditis. A nonhomogenous structure with contained liquid and abnormally high blood circulation, which was spreading over the posterior surface of the thyroid gland into mediastinal septum was determined one day later, during echography of the thyroid gland (Fig. 1). Indirect laryngoscopy: right-side larynx paresis. Blood test: parathyroid hormone 843 pg/ml (norm 15–65), chlorine – 110.7 mmol/l (norm 97–110), calcium – 2.96 mmol/l (norm 2.10–2.60), ionized calcium 1.8 mmol/l (norm 0.9–1.1), TSh 0.9 мкМЕ/ml (norm 0.4–4.0), fT4 11.9 pmol/l (norm 9.0–22.2) hemoglobin 129 g/l (norm 120–150), hematocrit 37.4% (norm 36–42). Within three days of hospitalization the patient was diagnosed with spontaneous hematoma of the neck on the right side. We did not know the reason for the hematoma, but figured out an increase of blood calcium levels. This was the basis for determining of the level of parathyroid hormone. The result of this analysis was obtained the 3rd day after. Positive dynamics was observed throughout 8 days of fluid treatment (0.9% aqueous solution of sodium chloride) and anti-inflammatory therapy (prednisolone, amoxicillin + clavulanic acid) – reduction

of pain syndrome, dysphagy, reduction of swelling and pain in the neck area. Ecchymosis appeared in the skin of neck area and chest. The patient continued to run a low-grade fever. The patient's condition improved within 8 days, and there was a hope for recovery without any operation. We have not seen any activity of the parathyroid glands by ^{99m}Tc-Perthchnetate Scintigraphy. However, a simple combination of hematoma and hyperparathyroidism seemed unlikely.

Symptoms of neck organs compression increased at the 9th day. There were signs of breathing difficulties and the operation got inevitable. An ultrasonography of the neck vessels was performed to identify the source of bleeding before surgery – the source was not found. A tense hematoma (Fig. 2) and hemorrhage into the hematoma cavity from the branch of inferior thyroid artery were visualized on a multi-slice CT scan with angiography. Discussion dealt with several possible operations: a simple hematoma emptying from a small incision; a full audit of the neck and removal of the modified parathyroid gland simultaneously with the removal of the hematoma. The difficulty consisted in that we did not know what parathyroid gland caused the hyperparathyroidism. We did not know how many parathyroid glands have increased its function. There was the risk of hypercalcemic crisis while leaving the source of hyperparathyroidism. There was a risk of rebleeding by simply hematoma draining. In addition, we were aware of the presence of inflammation in the hematoma area that bores the risk of wound infection in case of a full neck audit. Therefore it was decided to search for the parathyroid glands only on the right side after hematoma emptying and ligation of the bleeding source. The patient was operated – hematoma lancing with resection of walls. The standard cross cervical access used for thyroidectomy was applied. The operation detected the deformation of the right lobe of thyroid gland. The capsule was involved in an inflammatory process. A significant scarring process was observed in the area of hematoma capsule. The hematoma cavity was opened by a small incision. 100 ml of old blood was removed. The hematoma cavity contained fragments of tissues, which were not related to the capsule. These tissues were removed for histological examination. There was a defect along the lower lateral wall of hematoma cavity. The blood clots were removed from a mediastinum through this defect. There was no hemorrhage during the surgery.

The right recurrent laryngeal nerve was exposed through the rear wall of the hematoma and separated from scars along the distance up mediastinum to larynx. Hematoma wall joined to thyroid gland were removed for histological examination. Hematoma wall joined to shroud of common carotid artery and internal jugular vein were removed for histological examination. A branch of the inferior thyroid artery was exposed during mobilization of the lateral hematoma wall. The branch ended in the hematoma wall. The proximal part of that branch was ligated, while the distal part was excised together with hematoma wall.

Histological examination discovered the fragments of parathyroid adenoma in the hematoma wall (Fig. 3). Level of ionized blood calcium got normal (1.06) approximately 24 h after the surgery. There were no complications during the post-operative period. Level of parathyroid hormone in blood at the 10th day after the surgery amounted to 26 pmol/l (norm 1.45–10.41). The patient was examined 6 months after the surgery. The patient had no complaints. She observed that her voice quality restored 2 months after the surgery, though the laryngoscopy indicated a still conserved right-side paresis of the larynx. The patient did not feel dysphagy, voice quality was intact, breathing was not restricted. Level of parathyroid hormone in blood amounted to 8 pmol/l (norm 1.45–10.41), serum ionized calcium concentration 1.14 pmol/l (norm 1.03–1.23), inorganic phosphorus 1.37 mmol/l (norm 0.87–1.45).

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