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Case Report

A rare cough complication: Internal oblique muscle hematoma ☆,☆☆

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ABSTRACT

Cough-related hematomas occur most frequently in the rectus sheath and retroperitoneum while lateral abdominal wall hematomas are rarely reported. Intramuscular hematoma might be mistaken for tumors and acute inflammatory diseases of the abdomen. A definite diagnosis is made with computerized tomography. In the case presented in this study, a 78-year-old female patient who had cough and shortness of breath for 1 week applied to the outpatient clinic with complaints of ecchymosis on the left side of the abdomen accompanied by swelling and pain under the left rib. The International Normalized Ratio of the patient, who used Warfarin sodium 5mg / day for mitral valve replacement, was in the effective range (INR: 2.4). Superficial ultrasound revealed a heterogeneous lesion with a well-circumscribed, hypoechoic and locally cystic component in the lateral abdominal wall in the left subcostal area. On computerized tomography, the lesion in the left internal oblique muscle of 27 × 60 mm, heterogeneous density, and with smooth borders was classified as Type 2 hematoma. Hemodynamics of the patient were stable and did not exceed INR 3 in follow-up, and there was no decrease in hemoglobin values. The patient's ecchymosis disappeared on the fifth day, and control ultrasonography showed the hematoma was partially resorbed. The aim of this study is to emphasize that conservative methods should be applied and surgery should be avoided as much as possible in internal oblique muscle hematoma.

Introduction

Cough is an important and strong defensive vagal reflex that cleans central airways from foreign substances and excessive secretion. Coughing applies a strong, transient pressure against the glottis. The glottis closes following a deep and fast inspiration. Thoracic and abdominal muscles contract creating high pressure in the lungs, as a result of which subglottic pressure also increases. During this activity, the air is exhaled explosively with the sudden opening of the glottis [1]. Intrathoracic pressures increase up to 300 mm Hg in cases

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Fig. 1 – patients photo shows ecchymosis on the left lateral side of the abdomen.

of severe cough. Accompanied by hemodynamic changes, the systolic pressure rises up to 140 mmHg in the expiratory phase [2]. These pressure and energy changes could also lead to undesirable consequences.

In patients with asthma, cough is linked to airways obstruction and cough receptors are stimulated by local bronchoconstriction [3]. Cough can create complications in almost any system, from the cardiovascular system to the musculoskeletal system. In the case presented in this study, an internal oblique muscle hematoma, a rare cough complication, was detected. The purpose of the study is to present the diagnosis and treatment approach in accordance with the relevant studies in the literature.

Case report

A 78-year-old female patient had been suffering from cough and shortness of breath for 1 week when she applied to our polyclinic with the complaint of ecchymosis on the left side of the abdomen, and swelling and pain under the left rib. The patient was using Warfarin sodium 5mg / day because of mitral valve replacement; she had a history of asthma and did not receive regular inhaler therapy. The results of measurements on physical examination are as follows: blood pressure: 120/70 mm Hg; pulse: 95 / min; respiratory rate: 22 / min; fever: 36.7 C. The patient had a long expiration and rhonchus was heard. Intestinal sounds were normoactive in the abdominal examination. The patient had ecchymosis on the left lateral side of the abdomen, and a painful, hard mass was palpated in the left upper quadrant of the patient (Fig. 1). A mechanical valve sound was heard in the mitral focus during the examination of the cardiovascular system. Other system examinations were normal. There was no abnormality in laboratory values except for the following values: hemoglobin: 10.3 g / dl; INR: 2.4; CRP 134 mg / L. In superficial ultrasound (US), a heterogeneous,

Fig. 2 – In abdominal computerized tomography (CT), a well-circumscribed, 27 x 60 mm hematoma with heterogeneous density was detected on the left internal oblique muscle in the axial section.

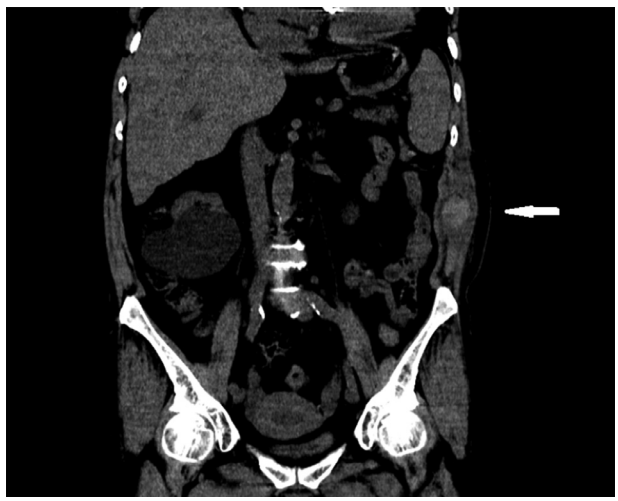

Fig. 3 – In abdominal computerized tomography (CT),hematoma on the left internal oblique muscle in the coronal section.

well-circumscribed and hypoechoic lesion with locally cystic component was detected in the lateral abdominal wall on the left subcostal area. In abdominal computerized tomography (CT), a well-circumscribed, 27 × 60 mm hematoma with heterogeneous density was detected on the left internal oblique muscle in the axial section, and no rib fracture was detected (Figs. 2 and 3).

The INR values of the patient without a history of trauma were not beyond the target level, and this was considered as a cough-related complication. The patient was hospitalized with the initiation of oxygen, bronchodilator, corticosteroid, ceftriaxone, and paracetamol treatment. The patient's hemodynamics was stable and the daily INR and hemogram follow-up was performed. The INR value of the patient did not exceed 3, and there was no decrease in hemoglobin levels. On the fifth day, the patient's ecchymosis disappeared and the pain subsided. In control US, hematoma was found to be partially resorbed.

Discussion

Cough is an important and strong defensive vagal reflex that cleans central airways from foreign substances and excessive secretion [1]. Although it is a protective mechanism, complications may begin to appear as the duration and severity of cough increase. The complications of cough could be grouped as: cardiovascular (arterial hypotension, loss of consciousness, rupture of subconjunctival, nasal and anal veins, bradyarrhythmia, tachyarrhythmia), neurological (syncope, headache, cerebral air embolism, cerebrospinal fluid rhinorrhea, seizure), gastrointestinal (gastroesophageal reflux, spleen rupture, inguinal hernia), genitourinary (urinary incontinence, bladder prolapse), musculoskeletal system (rectus abdominis rupture, rib fracture), respiratory (pulmonary interstitial emphysema, pneumomediastinum, pneumoperitoneum, pneumoretroperitoneum, pneumothorax, subcutaneous emphysema, laryngeal trauma, tracheobronchial trauma), and other complications (petechia and purpura, change of voice) [1].

Abdominal wall hematomas are formed by epigastric vessel or rarely by deep circumflex iliac artery rupture or rupture of the rectus muscle or lateral oblique muscles [4,5]. Although the rectus sheath hematoma is well known among spontaneous abdominal wall hematomas, oblique muscle hematomas are very rare [6,7]. Causes of intramuscular hematoma include abdominal trauma, previous operation, cough, hypertension, intraabdominal injections, pregnancy, and iatrogenic and anticoagulant therapy during laparoscopy [8,9]. Common signs and symptoms include abdominal pain, abdominal mass, decrease in hemoglobin level, abdominal wall ecchymosis, nausea, vomiting, tachycardia, peritoneal irritation, fever, abdominal distension and cramp [10]. Gray Turner and Cullen signs may occur with ecchymosis that occurs around the belly and umbilicus [11]. Ecchymosis is rarely seen in abdominal wall hematoma, reported as 17% by Cherry et al [10]. Due to these symptoms, intramuscular hematoma may be confused with tumors and acute inflammatory diseases of the abdomen. Morbidity and mortality increase with unnecessary surgical interventions especially in patients at high risk as a result of misdiagnosis. Unlike acute intra-abdominal diseases, there is no deformity in general condition of patients with rectus sheath hematoma despite severe pain [12].

US, CT and magnetic resonance imaging are commonly used in diagnosis. Magnetic resonance imaging allows differential diagnosis of tumors and chronic hematoma [13]. Although US is used as the first choice in diagnosis because of its easy and quick accessibility, rapid feasibility and providing information about the location of the mass, it is difficult to distinguish between intraperitoneal and extraperitoneal lesions through US [14]. CT is superior to US in detecting the location, size, and spread of the hematoma [11].

Rare oblique muscle hematomas are classified according to CT findings as in rectus muscle hematomas. Type 1 hematoma is mild, and it develops inside the muscle, creating an extension of the muscle. Type 2 hematoma is moderate and intramuscular, but bleeding occurs between the transversal fascia and the muscle. On the other hand, Type 3 hematoma is severe and localized between the transversal fascia and the muscle, in front of the peritoneum and bladder.

Type 2 and Type 3 hematomas require hospitalization while Type 1 hematoma usually does not require hospitalization, and the hematoma will spontaneously resorb within 30 days. Bed rest, intravenous fluid replacement and analgesia are the main treatment approaches to Type 2 lesions. Such lesions resorb within 2–4 months. Blood transfusion is required In Type 3 lesions. Such hematomas usually resorb within a period of longer than 3 months [15]. Conservative treatment includes bed rest and analgesics. Although bleeding is usually self-limiting, it produces a mortality of 4%. When conservative treatment fails, surgical intervention, or transcatheter arterial embolization is recommended [4,7]. While conservative treatment is needed in most patients, surgical treatment could be required in particular cases such as progression of the hematoma, rupture to the peritoneal cavity or infection. In order to control bleeding and move away from surgery, vascular embolization treatment with catheter may be considered [5,7]. The drainage of hematoma with US or vascular ligation through laparotomy is among the surgical interventions to apply. Since serious complications such as kidney failure or small intestinal ischemia could occur due to intra-abdominal compartment syndrome from advanced hematomas, hematoma drainage accompanied by US could be considered as a minimal invasive option in such patients [16]. Since the general condition of our patient was good and her hemodynamics remained stable, her follow-up was considered appropriate with conservative treatment.

Conclusion

CT should be performed for the definitive diagnosis of cough-related intramuscular hematoma. Thus, classification and treatment approach should be determined and conservative treatment should be preferred as much as possible.

Patient consent

Patient have no objection to any of the above and give permission for the same.

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