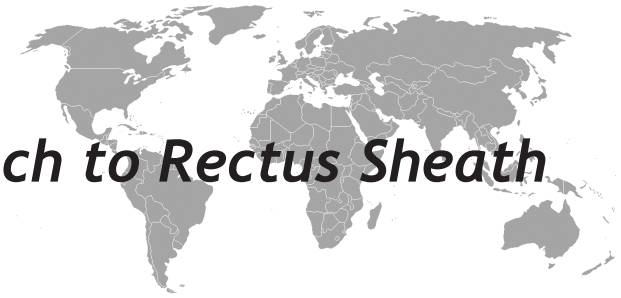

A Conservative Approach to Rectus Sheath Haematomas

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ABSTRACT

***Aim**: Rectus sheath haematoma (RSH) is the result of a rupture of epigastric vessels or rectus muscle occurring mostly in infraumblical region. Etiological factor is predominantly trauma and rarely spontaneous. Generally, misdiagnosed or delays in diagnosis result in unnecessary surgical intervention.*

***Method**: Between December 2008 and September 2009, five patients diagnosed for RSH in our hospital retrospectively analyzed in terms of the demographical characteristics, clinical and radiological findings and length of stay in hospital.*

***Result**: The average age of the patients was 67 (59-76) years and all were female. At least one of the patients had a systematic disease. All the patients were using anticoagulant and none of them had trauma story. On physical examination, we determined palpable masses loca ted as follows; in left lower quadrant of three patients, in right lower quadrant of one patient and in left upper quadrant of one patient. The types of RSH in radiological imaging were Type 1 in one patient, Type 2 in three patients and Type 3 in one patient. Anticoagulant treatments were stopped and all patients were treated conservatively. The average stay in hospital time of the patients was 8 days. The computed tomography control at the end of the first month revealed that the mass disappeared in cases with Type 1 RSH while the other four cases had a marked decrease in the mass size.*

***Conclusion**: RSH should be taken into consideration in differential diagnosis when elder patients - especially females - with anemia, palpable mass, anticoagulant medication history admitted to clinics with acute abdomen. Early diagnosis of RSH provides the preventing of the unnecessary surgical interventions and determines the success of conservative treatment.*

***Key words**: Rectus muscle, haematoma, diagnosis, treatment*

Rektus Kılıfı Hematomuna Konservatif Yaklaşım

Amaç: *Rektus kılıfı hematomu (RKH), epigastrik damarların veya rektus kası liflerinin yırtılması sonucu en sık infraumblikal bölgede meydana gelir. Çoğu kez neden travma olup, nadiren spontan olarak oluşur. Genellikle yanlış tanı veya tanıda gecikmeler gereksiz cerrahi girişimlerin uygulanmasıyla sonuçlanır.*
Metod: *Aralık 2008 - Eylül 2009 tarihleri arasında rektus kılıfı hematomu tanısıyla kliniğimize yatırılarak tedavi edilen 5 hasta demografik özellikler, klinik ve radyolojik bulgular ve hastanede yatış süreleri açısından retrospektif olarak incelendi.*
Bulgular: *Hastaların ortalama yaşı 67 (59-76) yıl olup, bütün hastalar kadındı. Hastaların en az birinde bir sistemik hastalık mevcuttu. Hastalardan tamamı oral antikoagulan kullanıyordu ve hiçbirinde travma öyküsü mevcut değildi. Fizik muayenede, 3 hastada sol alt, 1 hastada sağ alt kadranda 1 hastada ise sol üst kadranda palpabl kitle mevcuttu. Tomografik olarak RKH'nun tipi, 1 hastada Tip 1, 3 hastada Tip 2 ve 1 hastada Tip 3 idi. Tüm hastalara konservatif tedavi başlandı. Antikoagulan kullanımı kesildi. Hastaların ortalama hastanede kalış süreleri ortalama 8 gündü. Birinci ayın sonunda yapılan kontrol bilgisayarlı tomografide; Tip 1 RKH'lı olguda kitlenin tamamen kaybolduğu, diğer 4 hastada ise kitle boyutlarının belirgin olarak azaldığı tespit edildi.*
Sonuç: *Akut karın nedeniyle hastaneye başvuran, antikoagulan ilaç kullanım öyküsü, palpabl kitlesi ve anemisi olan ileri yaş grubundaki özellikle bayan hastalarda, ayırıcı tanıda RKH göz önünde bulundurulması, gereksiz cerrahi girişimlerin önlenmesini ve konservatif tedavinin başarıyla uygulanmasını sağlar.*

Anahtar kelimeler: *Rektus Kası, hematom, tanı, tedavi*

INTRODUCTION

Rectus sheath haematoma (RSH) occurs uncommonly as a result of rupture of epigastric vessels or rectus muscle tear. While it is formed rarely spontaneously, it may develop due to trauma, abdominal operations, laparoscopic trocar injuries, subcutaneous drug injections, anticoagulant treatment, hematological diseases, hypertension with abdominal pressure [intra-abdominal hypertension] increased by coughing, physical exercises and pregnancy (1). RSH is seen most frequently in infraumblical region and it generally confines itself. As rectus muscle posterior sheath below arcuate line is weaker, RSH may lead to peritoneal irritation findings (2-5).

MATERIALS AND METHODS

We investigated the complaints of five patients diagnosed with RSH treated in General Surgery Department of Medical Faculty of University of Dicle between December 2008 and September 2009 retrospectively as per demographical characteristics, additional systemic diseases and anticoagulant history. Besides, we recorded the physical examination and radiological findings during our study. We recorded the treatments, follow-up parameters, prognosis and length of stay of the patients and examined them together with the literature.

RESULTS

TThe average age of the patients was 67 (59-76) and all were female. At least one of the patients had a systematic disease. Four of the patients had coronary artery disease, two patients had hypertension, one patient had chronic obstructive lung disease and two patients had cough driven by acute bronchitis. All the patients were using anticoagulant – three were using warfarin and two acetyl salicylic – and none of them had trauma story. During the physical examination we identified palpable masses located as follows; three patients had in left lower quadrant, one patient had in right lower quadrant and one patient in left upper quadrant. A large ecchymotic area was noted in one of the patients, starting from left lower quadrant extending to left lumbar and thoracic region (Figure 1). Physical examination revealed abdominal tenderness, defence and rebound except one who only had abdominal tenderness (Table 1). In the ultrasonographic findings (USG) two patients were reported to be normal, others were noted for having abdominal solid lesions with smooth borders one of which were pressing onto the bladder. Computerized tomography revealed rectus sheath haematoma. One patient had Type 1, three patients had Type 2 (Figure 2) and one patient had Type 3 RSH (Table 2). White blood cell count was between 11.2 – 14.0 K/UL and a moderate leukocytosis was noted. Except one patient, all had normal hematocrit, haemoglobin and biochemical values. The patient with Type 3 RSH had Hb:10.2 g/dl, Hct: 31.8% and urea:100 mg/dl, creatinine: 1.49 mg/dl. All had normal prothrombin time, active partial thromboplastin time and INR values. We started to treat all the patients conservatively. Anticoagulant warfarin and acetyl salicylic acid medication was stopped. All were treated with bed rest, analgesia, fluid therapy and K vitamin.

Table 1*. Patients' medical history and physical examination*

Number	Age	Gender	Medical History	Physical examination	Anticoagulant use
1	59	F	CAD, HT	Palpabl mass in the left lower abdomen Ecchymotic area, extending to left lumbar and thoracic region. Tenderness(+), defence(+), rebound(+)	Warfarin
2	61	F	CAD	Cough, due to acute bronshitis Palpabl mass and ecchymotic area in the left upper abdomen Tenderness(+), defence(+), rebound(+)	Acetyl salicylic acid
3	68	F	COPD, HT	Cough, due to acute bronshitis Palpabl mass in the left lower abdomen Tenderness(+), defence(-), rebound(-)	Acetyl salicylic acid
4	76	F	CAD	Palpabl mass in the left lower abdomen Tenderness(+), defence(+), rebound(+)	Warfarin
5	71	F	CAD	Palpabl mass in the right lower abdomen Tenderness(+), defence(+), rebound(-)	Warfarin

F: Female, CAD: Coroner Artery Disease, COPD: Chronic Obstructive Pulmoner Disease, HT: Hypertension

Type 3 RSH patient had Hb: 6.89 g/dl and Hct: 20.8 %; therefore she received erythrocyte suspension and fresh frozen plasma. The other patients did not need blood replacement. The radiological examination done at the end of the first week on Type 3 RSH revealed that the haematoma confined itself and it did not expand. The other four patients did not need additional radiological examination due to their hemodynamic stability. The average stay in hospital time of the patients was 8 days (5-13). Type 3 RSH patient had the longest stay period. The CT control at the end of the first month revealed that; the mass disappeared in Type 1 RSH cases while the other four cases had a marked decrease in the mass size.

DISCUSSION

RSH generally appears as a sudden abdominal pain and imitates acute abdomen (6). Occurrence rate per gender is F/M = 2.5/1 and 5 to 6 times higher in females (7). It generally goes unnoticed in emergency services while examining the different reasons of acute abdomen and may lead to unnecessary surgical interventions (8). The negative laparotomy caused by misdiagnosis increases morbidity and mortality rates prominently (1). In differential diagnosis, it is also mistaken for acute appendicitis, peptic ulcer perforation, ovarian cyst torsion, intestinal obstruction, ectopic pregnancy, ablatio placentae, intra-abdominal masses (9,10). The most

Table 2*. Radiological Imaging Findings*

Number	Imaging method	Findings
1	Usg	Heterogeneous solid lesion, 115x90 mm in size, pushing the bladder to right side and extending from umblicus to the pelvic region
	CT	Rectus sheath haematoma, 9x7x4 cm diameter in the left and 18x10x6 cm diameter in the right, which is extending to the pelvic region with a 7x12x9 cm suprapubic haematoma
2	Usg	Homogeneous lesion, 15x8 x5 cm in size, in the upper left quadrant with smooth borders.
	CT	Hyperdens mass, 22x8x5 cm in size, with smooth borders in the upper left quadrant in front of the abdominal wall
3	Usg	Normal
	CT	Right rectus muscle was thickened according to the left side and a rectus sheath haematoma, 4x2 cm in size, in the left side.
4	Usg	A well-circumscribed lesion, 6.5x3.5 cm in size, in the lower left quadrant.
	CT	A haematoma ,37x55x120 mm in size, in the left rectus muscle.
5	Usg	Normal
	CT	A haematoma , 10x6 cm in size, in the right rectus muscle.

Usg: Ultrasonography), CT: Computerized Tomography

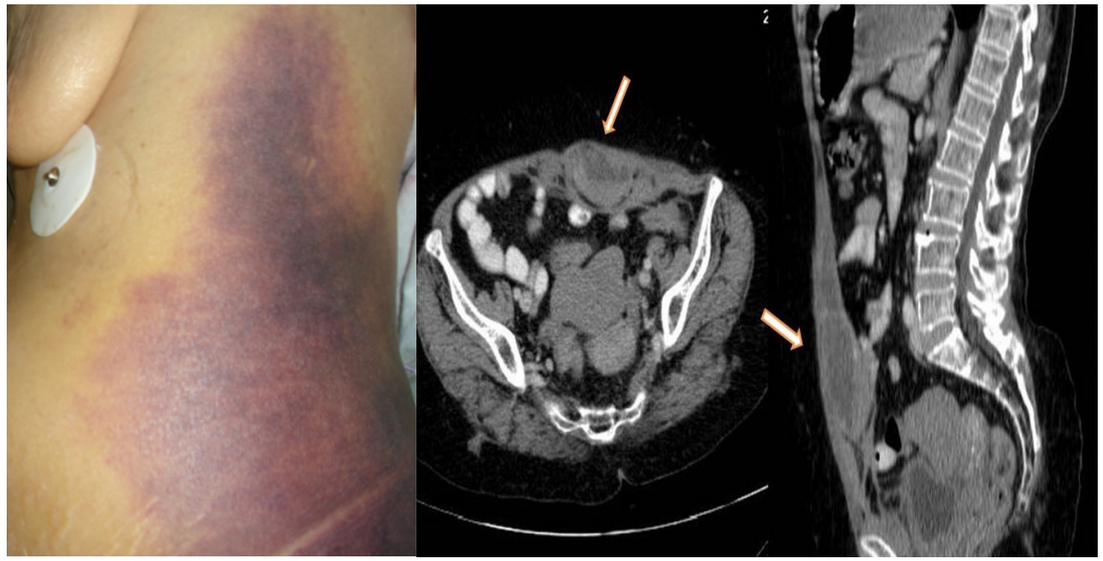

Figure 1 and 2*. 1; The patient with ecchymosis in the abdominal wall and left flank, 2; Computed tomography scan of the patient showing the hematoma limited in the left rectus abdominis sheath*

frequent symptoms of RSH are ecchymosed and mass on abdominal wall, low hemoglobin, nausea, vomit, tachycardia, peritoneal irritation, fever, abdominal distension and cramps (11). All our patients were female with an average age of 67. They applied to our hospital with complaints of sudden and sharp pain together with an abdominal mass formation, all of which were similar to the literature. The complaints for severe abdominal pain, nausea, and vomit together with peritoneal irritation findings made it difficult to differentiate it from acute abdomen. Fothergill's sign and Carnett sign are positive in RSH, and helps to differentiate this condition from other intra-abdominal pathologies (2-5). Fothergill sign; if a mass produced by haematoma in the abdominal wall does not cross the middle line it remains palpable when the rectus muscle is made tense by making the patient touch his chest using his chin. Carnett sign; increase of tenderness and pain on the haematoma when the rectus muscle is tensed while a supine patient raises his/her head and shoulders from bed (3). Both Fothergill and Carnett signs were positive for our patients and that made it necessary to use additional imaging methods.

The diagnosis widely employs CT and MR imaging techniques. Though used extensively for reasons like high sensitivity, rapid result, low cost and low dose radiation exposure, USG may provide limited information and may lead to wrong interpretation due to existing abdominal tenderness of the patient and difficulty in distinguishing between intra and extra abdominal lesions (1,5). Though two of our patients were misreported as normal in USG, CT imaging revealed RSH. CT is the golden standard for diagnosis and has approximately 100% sensitivity and specificity (12). RSHs can be classified by CT. Type 1; the haematoma is intramuscular with little bleeding. An increase in the size of muscle is observed. Type 2; the haematoma is intramuscular and moderate. Blood is observed between the muscle and the transversalis fascia. Type 3 haematoma has acute bleeding. Blood is observed between the muscle and the transversalis fascia, in the peritoneum and in the prevesical space. Type 1 generally does not require hospitalization and resolve itself within 30 days. Hospitalization for Type 2 and Type 3 is obligatory. Type 2 requires bed rest, fluid replacement and analgesia while Type 3 may require additional blood transfusion. These type of hematomas generally

resorb within three months (4,13). When the condition of the patient is made hemodynamically stable via conservative treatment, it is observed that the haematoma does not expand and shrinks itself (1,2,4,5). In case of failure of conservative treatment with unstable hemodynamic, expand of haematoma, development of abscess formation and lack of diagnosis, a surgical treatment is advised (8). All our study patients sustained hemodynamic stability. The hematomas did not expand and shrank themselves. Therefore we followed conservative treatment on all. Conservative treatment employs, stop of anticoagulant medication, hemodynamical evaluation, bed rest, intravenous fluid replacement, blood product replacement if necessary, neutralisation of anticoagulant impact by K vitamin and fresh frozen plasma (15 mg/kg) (8,14). The mortality rate of the surgical intervention done in case of the failure of conservative treatment is high (1). When surgery becomes obligatory, the haematoma must be drained and the bleeding epigastric vessels must be ligated (14,15). Arterial embolization can be conducted by locating the bleeding vessel via transfemoral catheterization and embolizing it (15).

In conclusion, early diagnosis of RSH is the most important factor preventing the unnecessary surgical intervention and determining the success of conservative treatment. Laparatomies resulting from misdiagnosis may lead to life threatening complications. Therefore, RSH should be taken into consideration in differential diagnosis when elder patients – especially females – with anemia, palpable mass, anticoagulant medication history received to clinics with acute abdomen. It is advisable to use imaging techniques especially CT and/or USG in case of clinical suspicion.

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