ORIGINAL ARTICLE

Spontaneous abdomen and abdominal wall hematomas due to anticoagulant/antiplatelet use: Surgeons' perspective in a single center

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ABSTRACT

BACKGROUND: The incidence of abdominal wall hematomas increased after the introduction of anticoagulant and antiplatelet drugs in clinical practice. These patients are usually old, and they have more than one comorbidity. Most spontaneous hematomas tend to limit itself and conservative treatment with close follow up is usually enough, but surgery is an option that should be decided critically. Unnecessary surgical interventions could worsen the situation. The present study aims to analyze the results of patients under anticoagulant/antiplatelet treatment and with spontaneous abdominal wall hematomas from surgeons' perspective.

METHODS: This is a retrospective study that the medical records of 43 patients who were under anticoagulant/antiplatelet therapy and consulted our general surgery clinic because of the spontaneous abdomen and abdominal wall hematoma between January-2016 and September-2018 were reviewed.

RESULTS: The findings showed that most of the cases were presented with abdominal pain. Thirty of these patients were female (69.7%). The mean age was 69.32 years. More than half of the patients (58.1%) were referred from the emergency department. All of the cases were under anticoagulant and antiplatelet treatment for several reasons. With presenting signs and symptoms and after evaluation of laboratory tests, computed tomography was performed to 30 patients (69.7%) as an initial test. USG and MRI were the other methods used. The most common diagnosis was rectus sheath hematoma (n=16; 37.2%) and followed by intestinal and colon wall, lumbar, psoas, pelvic and retroperitoneal hematoma in decreasing order. Among 43 patients, 39 patients (90.6%) followed with conservative treatment and two patients were treated with transcatheter arterial embolization. Two patients (4.6%) were died on day 1 and 11 after diagnosis. No surgery needed for all patients.

CONCLUSION: Early recognition, hospitalization of risky patients, close follow-up of hemodynamic parameters, patients' response to conservative treatment and minimal invasive methods are key points. Conservative care is the choice of treatment, but surgery must always keep in mind in hemodynamic unstable patients.

Keywords: Abdominal wall; anticoagulant; antiplatelet; hematoma.

INTRODUCTION

Abdominal wall hematomas, such as rectus sheath and psoas are clinical conditions that may occur after trauma, surgery, interventional procedures, or may spontaneously happen, especially in older patients who are receiving anticoagulant/antiplatelet therapy. Spontaneous abdominal wall hematomas are strongly related to anticoagulant/antiplatelet use and there is a well-described increase in incidence, especially in rectus sheath hematomas, after the introduction of anticoagulant/antiplatelet therapy in the field.[1–3] These patients with spontaneous abdominal wall hematomas usually present in emergency services with complaints as a mass in the abdomen, acute abdominal pain, dizziness, vomiting, and ileus or may present in shock as in progressive occasions. In clinical practice, at a considerable rate, patients in different departments treated for different

Cite this article as: Çolakoğlu MK, Özdemir A, Kalcan S, Demir A, Demiral G, Pergel A. Spontaneous abdomen and abdominal wall hematomas due to anticoagulant/antiplatelet use: Surgeons' perspective in a single center. Ulus Travma Acil Cerrahi Derg 2020;26:50-54.

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Ulus Travma Acil Cerrahi Derg 2020;26(1):50-54 DOI: 10.14744/tjtes.2019.32485 Submitted: 30.10.2018 Accepted: 25.02.2019 Online: 30.12.2019

reasons can be determined incidentally with varied imaging methods. Especially these patients from cardiology, pulmonary medicine, or other surgical unites may bring about a dilemma for general surgeons. Treatment options include conservative, interventional and surgical methods. A general surgeon must be aware of which method could be suitable for the patient because these patients are old, have a wide range of morbidities, already have bleeding diathesis and surgery could be fatal for most of them. Most of the hematomas limit themselves and conservative management may be sufficient, but as in the group of patients mentioned above could be mortal at a rate of 4–20%.[4] Hemodynamic instability to multiple organ failure or death is a frightening situation.[5] Making a surgical decision could be very difficult and unnecessary surgical interventions may worsen the clinical situation.

In this study, patients who were consulted to a general surgery department and who were under anticoagulant/antiplatelet treatment and had an abdominal wall hematoma were evaluated retrospectively. We aimed to report a series of 43 patients with their characteristics, clinical conditions and treatment results and try to answer the surgeon's dilemma with our single-center perspective.

MATERIALS AND METHODS

The medical records of patients who were under anticoagulant/antiplatelet therapy and consulted to our general surgery clinic because of the abdomen and abdominal wall hematoma between January-2016 and September-2018 were reviewed retrospectively. Patients were mostly consulted from the emergency department and other units, such as intensive care, cardiology or pulmonary medicine. Patients who had abdominal wall hematoma but not a history of anticoagulant/antiplatelet usage or patients with hematological or coagulation disorders or had major trauma or surgery recently were excluded. The records of 43 patients who met the conditions were examined. The demographic data, comorbidities of patients, history of anticoagulant/antiplatelet drug usage, presenting signs and symptoms, use of imaging methods, clinical follow-up, and use of blood supplies, treatment methods and end-results were evaluated. International normalized ratio (INR) results and length of hospital stay were also documented and we also tried to identify predisposing factors for spontaneous abdominal wall hematoma. This study was conducted in a university hospital, and all data were collected and evaluated after the study was approved by the same institute's ethics committee (date: 09.03.2018, no: 2018/50).

Statistical Analysis

Statistical Package for the Social Sciences (SPSS 21 Inc., Chicago, IL, USA) was used for statistical analysis. The collected data were expressed as means (±SD), minimums and maximums, or percentage. HTC and INR levels at the time of diagnosis and at the time of discharge were compared using a paired t-test.

RESULTS

Between January-2016 and September-2018, 43 patients who had abdominal wall hematoma and had a history of anticoagulant/antiplatelet usage were consulted to our general surgery department. Thirty of these patients were female (69.7%). The mean age was 69.32 years (70.43 years for female and 66.76 years for male). All patients were consulted from other departments. The highest number was from emergency department (58.1% 25 patients) and followed by cardiology (n=5), pulmonary medicine (n=5), intensive care unit (n=3), internal medicine (n=2), urology (n=2) and gynecology (n=1) in decreasing order. The demographic and clinical characteristics of patients are summarized in Table 1 and the indications, and numbers of anticoagulant/antiplatelet usage of these patients are summarized in Table 2.

All patients were either hospitalized patients (n=18) that were treated in different departments for different reasons or patients who presented to the emergency department for various reasons (n=25). No matter where the patient was referred to the general surgery department, the most frequent reason for consultation was a pain (n=37, 86%). The pain was mostly located on the anterior abdominal wall, but groin and lumbar regions were also located. Nausea, abdominal mass, melena, hematuria, or sub-ileus symptoms were also seen in addition to pain. With these presenting signs and symptoms and after evaluation of laboratory tests, computed tomography (CT) was performed to 30 patients (69.7%) as an initial test. Ultrasound (USG) was the first imaging modality of choice in seven patients. One patient had both USG and CT and magnetic resonance imaging (MRI) needed for two patients after USG evaluation. No imaging methods required for three patients. The most common diagnosis after evaluation of these imaging methods was rectus sheath hematoma (n=16; 37.2%). Intestinal and colon wall, lumbar, psoas, pelvic and retroperitoneal hematoma followed this in decreasing ratio. Patients presenting signs and symptoms, imaging tests and location of hematomas are all summarized in Table 3.

Eighteen patients were already hospitalized in different departments. Among 25 patients that were consulted from the emergency department, 21 of them (84%) hospitalized and followed in the general surgery department, and four of them followed in the outpatient clinic. At the time of hematoma detection, initial hemogram and INR values of all patients were evaluated. The mean hemoglobin value at the time of diagnosis was 10.4±2.5g/dL (4.8–16). Nineteen patients (44.1%) had a hemoglobin value under 10g/dL. Twenty patients (46.5%) needed at least one erythrocyte suspension during their hospitalization period. The mean number of erythrocyte suspension used was 3.5±1.7 (1–7). The mean INR value at the time of diagnosis was 3.2±2.3. Eighteen patients (41.8%) had an INR value over 3. Twenty-four patients needed (55.8%) at least one fresh frozen plasma transfusion for supportive care. The mean number of plasma transfusion

Table 1. Demographic and clinical characteristics of the patients

Gender (n=43)	
Female	30 (69.7%)
Male	13 (30.2%)
Age (years)	69.32 (22–89)
Female	70.43
Male	66.76
Comorbidities	
Heart failure	6
Hypertension	12
Diabetes mellitus	5
Arrhythmia	14
Coronary artery disease	9
Pulmonary embolism	4
Chronic obstructive pulmonary disease	2
Cerebrovascular disease	4
Chronic renal failure	1
Other	4

Table 2. Indications and numbers of anticoagulant/antiplatelet usage

	n
Anticoagulant treatment (n=27, 62.7%)	
Oral anticoagulant	23
Low-molecular-weight heparin	4
Antiplatelet treatment (n=13, 30.2%)	
Acetylsalicylic acid	5
Klopidogrel	6
Both	2
Anticoagulant + Antiplatelet treatment (n=3, 6.9%)	3
Indications	
Atrial fibrillation	14
Coronary artery disease	11
Valve replacement	7
Valve disease	3
Cerebrovascular disease	4
Pulmonary embolism	4

used was 3±1.8 (1–8). Platelet counts were between normal ranges for all patients.

Among 43 patients, 39 patients (90.6%) followed with conservative treatment (follow-up for outpatient clinic patients, blood and plasma transfusion, and Vitamin K and IV supportive care if needed). Additional USG or CT screenings performed

Table 3. Sign and symptoms, imaging methods used, location of the hematoma

	n
Presenting sign and symptoms	
Abdominal pain	23
Abdominal mass with pain	7
Groin pain	3
Symptoms of ileus	3
Lumbar pain	2
Pain with nausea	2
Melena	1
Hematuria	1
General condition disorder	1
Imaging methods used	
Computed tomography	30
Ultrasound	7
Magnetic resonance imaging	2
Ultrasound with computed tomography	1
No imaging methods	3
Location of hematoma	
Rectus sheath hematoma	16
Intestinal and colon wall	10
Lumbar	5
Rectus sheath with retroperitoneum	4
Psoas muscle	3
Pelvic	3
Retroperitoneum	2

according to the patient's clinical course. Five patients (11.6%) followed in the intensive care unit (ICU). Three patients were consulted from the ICU unit, and two patients were transferred from the general surgery department. Two patients were treated with transcatheter arterial embolization, and hematoma of them was drained with the help of interventional radiology because of obstruction symptoms in intestinal and urinary passages. Two patients (4.6%) died on day 1 and 11. Both were followed for different comorbidities and consulted from ICU unite after the detection of the hematoma. One patient had retroperitoneal and one patient had pelvic wall hematoma, but surgery was not indicated according to their symptoms, laboratory results and radiological findings.

The mean length of hospital stay was 7.8±5 days (1–20). All patients were followed up very closely and followed with a conservative approach and radiology support when necessary. No surgery needed for all patients.

DISCUSSION

After the introduction of anticoagulant and antiplatelet use

in clinical practice, the incidence of spontaneous abdominal and abdominal wall hematomas increased, especially in patients with older ages.[6] These patients usually referred to the emergency department because of abdominal pain even hematomas are the uncommon cause of acute abdominal pain.[7–9] Pain in the groin or lumbar region, abdominal masses, symptoms of intestinal obstruction, or hypovolemic shock in advanced situations also can be seen[10] as in our series.

Treatment choices could be a contradiction for surgeons. Older ages, comorbidities and susceptibility of patients to bleeding can lead surgeons into two different ways. The first way is avoiding surgery, but being too late could start the cascade from organ failure to death. The second way is an early decision of surgery, but unnecessary operations could worsen the situation that could already limit itself. To overcome this dilemma, we strongly believe that early recognition, hospitalization of risky patients, close follow-up of hemodynamic parameters, patient's response to conservative treatment and minimal invasive methods are key points. Surgery should always keep in mind, and decisions should be made after evaluation of these vital points. As an endpoint, literature mentions that surgery should be performed only cases that hemodynamic stability cannot be established.[7,11–13]

For a close follow-up, imaging methods are important and can be repeated if necessary. USG can be used as an initial test and for non-complicated hematomas, but CT and even MRI can be performed if necessary. In our study, 69.7% of the patients had CT as an initial test because of two reasons. First, abdominal hematomas were also included in this study, and we believe that CT is more accurate and necessary for detecting the size and location of intraabdominal hematomas in this risky group of patients. Second, most of the patients referred from the emergency department, and CT is the preferred imaging method in clinical practice. MRI could be performed in patients whose renal functions were not suitable for injection of contrast agent as we did in our series.[14,15] The rapid increasing size of the hematoma and alternating hemodynamic functions should alert surgeons for surgery. Most patients can be followed with a conservative treatment until hematoma size, and hemogram results remain stable.[10] Interventional radiology methods are less invasive and effectively used in high-risk patients.[16] In our series, we also used transcatheter arterial embolization for two cases that did not respond to conservative treatment and had a high-risk for surgery. Both cases were successfully treated.

The mortality rate was 4.6% in our series. Mortality rates vary from study to study and in a range of 2–20% in the relevant literature. Two patients who had retroperitoneal and pelvic wall hematoma and followed in the ICU unit died on day 1 and 11. Both patients had multiple comorbidities, and surgery was not indicated according to their symptoms, laboratory results and radiological findings at the time of first evaluation.

When considering this information from the perspective of a surgeon, a simple question arises: So what is the place of a surgeon in the treatment of abdominal wall hematoma? As seen in the literature and supported by our series, the conservative approach is sufficient in most patients. However, the surgical decision is found to be beyond a critical and thin line, especially in patients with high morbidity and in cases who are hemodynamically unstable. Thus, we suggest that diagnostic workup and treatment management should be performed with a multidisciplinary approach led by the surgeon. Regardless of who evaluated the patient first, a surgical opinion should be taken and treatment decisions should be given together. Hence, the patient's hemodynamic status, comorbidities and age are very important and risky patients should be followed up in the intensive care unit. We recommend performing CT imaging in patients with major complaints (such as ileus and hematuria), except for hemodynamic status or pain, although USG imaging is sufficient in mild cases and minor hematomas. Abdominal organ wall hemorrhages can be easily distinguished by CT and, if necessary, the progression of hemorrhage can be monitored by sequential imaging. For patients who do not respond to conservative treatment, we recommend minimally invasive methods (interventional radiology) if the patient's condition is appropriate, especially in patients with a high risk of morbidity and mortality for surgery. Patients who need a continuous blood transfusion, hemodynamically unstable and progression of hematoma with other pathologies that require surgery should be taken to the operation room without delay. Since this process can develop in minutes, the surgeon's opinion should be taken in the management of all patients.

There are some limitations to this study. First of all, it is a retrospective study and patients were evaluated according to their patient charts and medical records. Secondly, there is no data about short term and long term follow up results after discharge. All patients continued their medical treatments according to their indications. Third, hospitalization was not directly indicated only for a hematoma in all patients. Eighteen patients were already hospitalized in different departments for different reasons, and hematoma detected at the time of their hospitalization.

Conclusion

Abdominal and abdominal wall hematomas are strongly associated with anticoagulant/antiplatelet use. The metabolic effects of these drugs should be closely monitored in this group of patients. Pain in elderly patients using these drugs should be a warning about hematoma. Early recognition, hospitalization of risky patients, close follow-up of hemodynamic parameters, patients' response to conservative treatment and minimal invasive methods are key points. Conservative care is the choice of treatment, but surgery must always keep in mind in hemodynamic unstable patients.

Ethics Committee Approval: Approved by the local ethics committee (date: 09.03.2018, no: 2018/50).

Peer-review: Internally peer-reviewed.

Authorship Contributions: Concept: M.K.Ç., A.Ö.; Design: M.K.Ç., A.Ö.; Supervision: A.P., G.D.; Materials: A.Ö., S.K.; Data: M.K.Ç., A.Ö., A.D.; Analysis: M.K.Ç., A.D.; Literature search: M.K.Ç., S.K., A.Ö.; Writing: M.K.Ç.; Critical revision: A.P., G.D.

Conflict of Interest: None declared.

Financial Disclosure: The autors declared that this study has received no financial support.

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ORİJİNAL ÇALIŞMA - *ÖZET*

Antikoagülan/antiplatelet kullanımına bağlı spontan abdomen ve abdominal duvar hematomları: Tek merkez, cerrah perspektifi

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AMAÇ: Abdominal duvar hematomlarının insidansı, klinik uygulamada antikoagülan ve antiplatelet ilaçların kullanılmasından sonra artmıştır. Bu hastalar genellikle yaşlıdır ve birden fazla komorbiditeye sahiptirler. Çoğu spontan hematom kendini kısıtlama eğilimindedir ve yakın takip ile konservatif tedavi genellikle yeterlidir ancak cerrahi, kritik olarak karar verilmesi gereken bir seçenektir. Gereksiz cerrahi müdahaleler durumu daha da kötüleştirebilir. Bu çalışmanın amacı, antikoagülan/antiplatelet tedavi altındaki ve spontan abdominal duvar hematomları olan hastaların sonuçlarını cerrahi perspektiften incelemektir.

GEREÇ VE YÖNTEM: Bu çalışma, Ocak 2016 ve Eylül 2018 yılları arasında antikoagülan/antiplatelet tedavi gören ve spontan abdomen ve abdominal duvar hematomu nedeniyle genel cerrahi kliniğimize başvuran 43 hastanın tıbbi kayıtlarının gözden geçirildiği geriye dönük bir çalışmadır.

BULGULAR: Olguların birçoğu karın ağrısı ile başvurdu. Bu hastaların 30'u kadındı (%69.7). Yaş ortalaması 69.32 idi. Hastaların yarısından fazlası (%58.1) acil servisten refere edildi. Olguların tamamı çeşitli nedenlerle antikoagülan ve antiplatelet tedavi altındaydı. Belirti ve semptomların izlenmesi ve laboratuvar testlerinin değerlendirilmesinden sonra 30 hastaya (%69.7) başlangıç testi olarak bilgisayarlı tomografik görüntüleme uygulandı. USG ve MRI kullanılan diğer yöntemlerdi. En sık rastlanan tanı rektus kılıf hematomuydu (n=16; %37.2) ve bunu sırasıyla bağırsak ve kolon duvarı, lombar, psoas, pelvik ve retroperitoneal hematom izledi. Kırk üç hastadan 39'una (%90.6) konservatif tedavi uygulandı ve iki hastaya transkateter arteriyel embolizasyon uygulandı. Tanıdan sonraki birinci ve 11. günde iki hasta (%4.6) hayatını kaybetti. Tedavi için cerrahi uygulama gerekmedi.

TARTIŞMA: Erken tanı, riskli hastaların hastaneye yatırılması, hemodinamik parametrelerin yakın takibi, konservatif tedaviye yanıt verme ve minimal invaziv yöntemler tedavide önemli noktalardır. Konservatif bakım ilk tedavi seçeneğidir ancak hemodinamik stabil olmayan hastalarda her zaman cerrahi akılda tutulmalıdır.

Anahtar sözcükler: Abdominal duvar; antikoagülan; antiplatelet; hematom.

Ulus Travma Acil Cerrahi Derg 2020;26(1):50-54 doi: 10.14744/tjtes.2019.32485