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Case Report

Case report-delayed splenic rupture in combination with medial femoral neck fracture after low energy trauma. Development of hemorrhagic shock 5 days after hip prosthesis due to a rare cause☆

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ABSTRACT

A 79 year old female patient was admitted to our emergency department with a fracture of the right medial femoral neck six days after a fall on her right side and a cemented hemiprosthesis was implanted. Five days later, she developed a hemorrhagic shock and was diagnosed with a delayed splenic rupture and the spleen was resected. Histopathological examination showed a delayed rupture of an otherwise normal spleen without signs of an underlying pathology. The outcome was fatal: In the postoperative course she developed pneumonia, three weeks later she succumbed due to multiple organ failure.

Even careful reevaluation of the case did not provide any clues to expect an injury of the spleen according to trauma mechanism.

This case shows that delayed splenic rupture of a normal spleen may occur even after a low energy trauma. Injury of the spleen should therefore always be considered, even with an uncharacteristic anamnesis. Physical examination after trauma should therefore always include a careful clinical evaluation. The clinical threshold for a FAST examination should be low.

The coincidence of a femoral neck fracture and a splenic rupture after a low energy trauma has not been reported before.

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Introduction

Femoral neck fractures occur frequently in the elderly population after low energy trauma, incidence at about 399.4/100.000 in Germany [1]. Most medial femoral head and neck fractures in the elderly population are treated by implantation of an endoprosthesis to mobilize the patient as early as possible. (See Figs. 1– 4.)

Besides cardiovascular incidents and pneumonia after hip surgery, bleeding complications can occur due to vascular injuries i.e. of the deep femoral or intrapelvic vessels. Penetrating damage to the vessels can be caused by i.e. dislocated guidewire pins, dislocated bicortical screws, or displaced Hohmann retractors. Even non-penetrating damage due to traction of calcified arterial vessels is reported [2–5].

Most often bleeding complications occur intraoperatively, there are also cases reported of hypovolemic shock after hip replacement caused by an intraoperative injury to branches from the common femoral artery and vein that retract proximally and do not become obvious via blood loss through the operative approach but continue to bleed to the retroperitoneal space [4].

Injuries of the spleen result from either penetrating or blunt trauma of the left abdomen or the lower thorax. After an abdominal blunt trauma the spleen is the most often affected organ with an incidence of up to 47.6% [6]. The mortality after a splenic rupture is one percent, and in the case of a delayed splenic rupture it is as high as ten percent [7]. In the presence of an isolated splenic injury only hemodynamic compromise triggers an operation. Preservation of the organ is an important principle while obtaining hemostasis. However, in stable patients that are treated conservatively, a delayed rupture of the capsule with subsequent hemorrhagic shock may occur. Inflammatory processes within the healing spleen temporarily weakens the splenic tissue before a stable scar is present — so monitoring as an inpatient is warranted for at least 14 days after trauma.

Case-report

A 79 year old Caucasian woman presented in the emergency department of our level I trauma center on 04/09/2014 with an already diagnosed medial femoral neck fracture on her right side after a low energy trauma that happened on 04/03/2014. Radiographs were conducted at the second visit to an orthopedic private practice and presented by the patient's husband.

Careful anamnesis of the patient and her husband was performed and showed that the patient fell on her right body side on flat ground. Neither the patient nor her husband could remember another traumatic incident.

As preexisting conditions she exhibited arterial hypertension, hypothyreosis, cataract, macular degeneration, hypacusis as well as multiple operations of eyes and hand were recorded.

The patient was fully orientated and exclusively complaining about the pain in her right hip. During initial examination the abdomen presented soft, with no tenderness on palpation and regular peristaltic sounds. As there was no clue of an injury of the spleen according to the trauma mechanism a FAST-sonography was not performed.

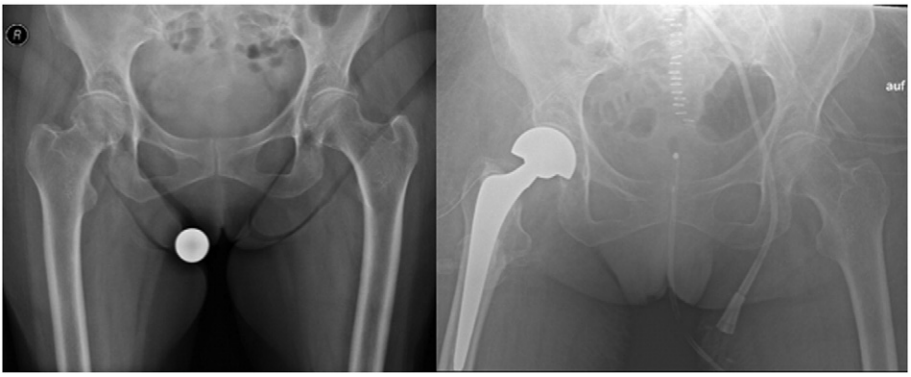

Fig. 1. Pelvic X-ray of the patient pre- and postoperatively.