Case Report

Spontaneous gall bladder haemorrhage in a renal dialysis patient following haemodialysis with tinzaparin

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Abstract

Spontaneous gall bladder haemorrhage is a rare and serious occurrence with a few cases reported in the literature in haemodialysis patients. This report describes this complication following dialysis with a low-molecular-weight heparin (LMWH) tinzaparin. This patient presented with acute right upper quadrant pain and intermittent haematemesis following 4 hours of haemodialysis. Despite being well established on dialysis, LMWH had only been used once previously. There was no history of trauma or pre-existing gall bladder pathology and no clinical or biochemical evidence of inflammation or infection. Computed tomography (CT) scan revealed an extensive gall bladder haemorrhage. The patient was treated conservatively with analgesia, and blood transfusion and symptoms settled without intervention. This case report highlights a rare site of bleeding following LMWH use in a haemodialysis patient.

Keywords: gall bladder haemorrhage; haemodialysis; low-molecular-weight heparin; tinzaparin

Introduction

It is well recognized that anticoagulation is required during haemodialysis to maintain the patency of the extracorporeal circuit. Traditionally, unfractionated heparin (UFH) has been used due to the uncertainty surrounding the safety and accumulation of low-molecular-weight heparins (LMWH) in patients with end-stage renal failure. It is now widely accepted that the use of LMWH in haemodialysis has an equal safety and efficacy as UFH [1–5]. LMWH have been consistently reported as easier to use than UFH [2,5], and there are some suggestions of the beneficial effect on lipid and bone profiles. LMWH, such as tinzaparin, are now widely used for anticoagulation during haemodialysis. Here, we present an unusual complication of LMWH in a chronic haemodialysis patient.

Case report

A 50-year-old male with end-stage renal failure secondary to mesangioproliferative glomerulonephritis commenced on haemodialysis in 2005. In 2009, he received a deceased cardiac donor kidney transplant. There was a poor perfusion at the time of implantation, and delayed graft function was expected. He was commenced on cyclosporin and mycophenolate mofetil, but following an episode of biopsy-proven acute rejection, he was converted to tacrolimus. A further biopsy showed acute tubular necrosis only. He remained dialysis-dependent. He was discharged home on a three-times-a-week dialysis.

He was re-admitted for a planned transplant graft biopsy for persistent graft dysfunction. He had his planned haemodialysis for 4 h with 2500IU of LMWH (tinzaparin) as anticoagulation, and 1 L of fluid was removed. Post dialysis, he had a full examination, including his abdomen; all of which was unremarkable. Thirty minutes later, he developed excruciating right upper quadrant pain, his blood pressure dropped from 140/80 to 90/50 and he became tachycardic. He then vomited fresh blood and clots. A further vomitus consisted of clear gastric fluid only. He had no melaena. He was not taking any anti-platelet agents. He was not known to have a pre-existing coagulopathy, and his coagulation screen at this time is normal. There was no history of trauma or evidence of sepsis. His C-reactive protein (CRP) was <5. He had no previous history of biliary disease. An ultrasound scan 2 weeks earlier demonstrated a normal liver and biliary tree, although it was not a focused scan. Examination revealed severe tenderness and guarding in the right upper quadrant. His haemoglobin dropped from 10.1 to 8.4 g/dL over 2 h. All the remaining blood tests were normal. The pain did not settle, and an urgent CT abdomen and pelvis was arranged (see Figures 1 and 2). The CT scan revealed acute gall bladder haemorrhage. He was treated expectantly with analgesics and a blood transfusion (2 units), but no intervention was required.

This was the second time that the patient had dialysed using LMWHs. Prior to this, he had been anticoagulated with unfractionated heparin with a 2000-IU loading dose and then 1200IU across dialysis. The change to LMWH had been a departmental switch for all dialysis patients. It has therefore been concluded that this was a spontaneous gallbladder haemorrhage secondary to LMWH.
Figures 1 and 2 show CT abdomen and pelvis following intravenous (IV) contrast enhancement. There is a high density content within the gall bladder and biliary tree consistent with acute haemorrhage.

Discussion

Acute spontaneous gall bladder haemorrhage is a rare occurrence with a few cases presented in the literature. The majority of cases reported to date have been in relation to trauma, known liver or gallbladder pathology, or underlying coagulopathy [6–8]. In this case, there was no known history of gall bladder pathology, and ultrasound scan, including the biliary tree, was normal 2 weeks previously, although this does not fully exclude biliary pathology. There was also no clinical or biochemical evidence to suggest an infective or inflammatory process at presentation. Haemorrhagic acalculous cholecystitis has been reported in haemodialysis patients, and ischaemia due to vascular disease in conjunction with uraemia is the postulated mechanism [9–11]. These previous cases were older patients with concurrent vascular disease; all of whom required cholecystectomy. To our knowledge, a spontaneous gallbladder haemorrhage has not previously been reported as a consequence of LMWH in the absence of other pathology, or treated conservatively in a haemodialysis patient.

There have been a few reported cases of major bleeding episodes in patients dialysed using LMWH, including tinzaparin [1,3]. Bramham et al. [2] found no major bleeding episodes in 1823 dialysis sessions in 108 haemodialysis-dependent patients. This was compared to a control group dialysed with unfractionated heparin. All patients received a minimum of 2500 unit bolus at the beginning of dialysis session. Lord et al. [5] found similar results in a crossover study looking at a selection of haemodialysis patients. These patients received tinzaparin (3500–4500IU) at the start of dialysis for 4 weeks followed by a further 4 weeks of UFH. One major bleeding episode was reported with tinzaparin, and this related to a fistula-needling site. It was later discovered that she received UFH in addition to tinzaparin.

There have been no reported interactions between the immunosuppressive drugs tacrolimus and mycophenolate mofetil and LMWH to suggest that this patient was at any increased risk of bleeding. Drug safety information suggests that bleeding with LMWH may be increased with concomitant use of anti-platelet drugs. Our patient was on no anti-platelet agents. The duration of action of tinzaparin is longer than UFH, with a time-to-peak action of 4–5 h post-administration; while this allows a single dosage at the onset of dialysis, it would suggest that the majority of patients will remain anticoagulated for a prolonged period post-dialysis in contrast to UFH. Due to the timing of the haemorrhage in relation to dialysis, which occurred 5 h after the administration of LMWH, the spontaneous bleeding was felt to be related to the use of LMWH. It is possible that the bleeding may have been exacerbated by an abdominal examination by the admitting doctor given that symptoms arose within minutes of this examination.

This represents a rare but serious complication of LMWH use in a haemodialysis patient. As the use of LMWH in dialysis patients increases, we may encounter more rare bleeding episodes, and physicians should keep this in mind when faced with unexplained symptoms in a dialysis patient.

Conflict of interest statement. None declared.

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