Haematoma caused by bone marrow aspiration and trephine biopsy

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Abstract

We report a case of a bone marrow aspiration and trephine biopsy (BMATB) associated haematoma in an 85-years old male without any predisposing risk factors. Six days after BMATB, he suffered from a massive thigh and buttock haematoma and a fall in haematocrit. It is important to know that BMATB can have complications aiding early recognition and therapy.

Introduction

Bone marrow aspiration and trephine biopsy (BMATB) are necessary procedures in order to diagnose various haematological disorders and to estimate the prognosis and response to therapy. The complications associated with these procedures are rare (less than 0.05%)[1] and could easily be missed due to the limited number of relevant reports in the literature. In a study of the British Society of Haematology, about 54,890 procedures were recorded with 26 adverse events. The commonest and more serious complication was haemorrhage (14 out of 26 adverse events) and 1 of them was so serious that led to death. The potential risk factors for BMATB associated haemorrhage are: myeloproliferative disorder, aspirin or warfarin therapy, disseminated intravascular coagulation and obesity.[1] We report a case of a BMATB associated haematoma without any predisposing risk factors alerting haematologists about this complication.

Case Report

An 85-years old male was admitted in our clinic in order to investigate the cause of his anemia (normocytic and normochromic). He suffered from a bleeding gastric ulcer, 6 months ago, as shown on gastric endoscopy, which was attributed to non steroidal anti-inflammatory drugs (NSAID) usage. The ulcer healed completely in 3 months, as proven with gastric endoscopy. However, haematocrit remained around 30% until admittance in our department, 3 months later. Ferritin level was 563 ng/mL and vitamin B12 was above 2000 pg/mL. The rest of his medical history includes type 2 diabetes mellitus under sulphonylureas, well controlled (HbA1c<6%) and moderate chronic renal failure (estimated glomerular filtration rate 50 mL/min•kg). BMATB was performed on right posterior iliac fossa. Six days later he came back due to severe pain at the puncture, swelling of the right leg up to knee angle and fever up to 38.5°C without chills. He suffered from a massive thigh and buttock haematoma (Figure 1), compartment syndrome and a fall in haematocrit from 30% to 25% was observed. The parameters of haemostasis were normal: prothrobin time was 11.4 sec, partial thromboplastin time was 40.2 sec, international normalized ratio was 0.95, platelet count was 141,000 mm^3 and fibrinogen was 185 mg/dL. Computed scanning of right buttock and thigh showed a haematoma of buttock and thigh. A transfusion of 3 red blood cell concentrate was required and antibiotics (daptomycin 350 mg o.d. and Piperacillin+Tazobactam 2+0.25 mg o.d.) were administered. The patient recovered uneventfully and was discharged 6 days later. It is worth mentioning that his karyotype, the estimation of coagulation factors (von Willebrand, factor IX and factor VIII), the immunologic tests and the platelet function tests were normal.

Discussion

The BMATB in our patient showed maturation of all 3 haematopoietic cell lines with hyperplasia of the red cell lineage and some dysplastic erythroid cells. These findings indicate the diagnosis of a myelodysplastic syndrome-refractory anemia of low risk[2] according FAB and WHO classification.[3] Myelodysplastic syndrome has been associated with bleeding complications[4] attributed to either thrombocytopenia or platelet dysfunction.[4] Our patient did not have either of them. It is worth mentioning that the patient has not applied pressure at the puncture site.

Coagulation factors (factor VIII was 135.5%, factor IX was 99%, von Willebrand factor was 211.2% and von Willebrand factor antigen was 227.3%), platelet number and function tests were normal. Furthermore, the immunologic tests were normal (antinuclear antibodies and complement C3a and C4d) indicating that the patient did not have any coagulation disorder or immunologic disease predisposing for BMATB complications.

Our patient was not using any medication which could be associated with adverse events of trephine biopsy such as aspirin or warfarin.

The age of a patient and the therapeutic benefit should be considered before performing any interventional procedure. However, advanced age is not a contraindication for BMATB and there is no known cut-off age for performing safely the procedure, to our knowledge. Especially for this patient (85-years old), as his overall health condition was remarkably good, BMATB was ordered for confirming the diagnosis by pathology and excluding the presence of fibrosis which would have changed the prognosis. It should be mentioned that the result of bone biopsy would not have changed the therapeutic approach for this patient.

The BMATB was performed by an experienced haematologist (1000 similar procedures in the last 10 years) without any complication mentioned. This observation has being confirmed by previous reports.[1]

Antibiotics were administered due to fever (up to 38.5°C) which was attributed to the haematoma as physical examination had no findings, besides thigh enlargement due to

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haematoma and the patient did not report any other complain. There was no skin infection at the site of puncture and there were no radiographic findings of osteomyelitis. Antibiotic administration could have contributed to the positive outcome of the patient. However, we should bear in mind that buttock haematomas are commonly less serious than the retroperitoneal haemorrhage which could require surgical intervention[5] and could lead to death as reported earlier.[1]

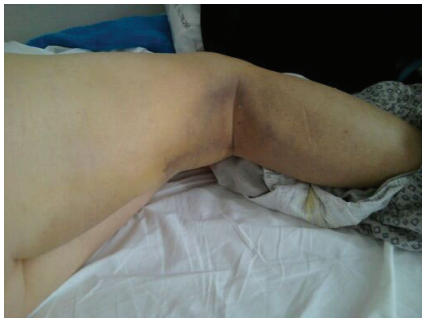

Figure 1. The patient suffered from a massive thigh and buttock haematoma reaching up to the level of the knee, following a bone marrow aspiration and trephine biopsy. The clinical and laboratory investigation did not identify any predisposing risk factor for bone marrow aspiration and trephine biopsy associated complication.

Furthermore, it should be mentioned that his daughter also suffered from a haematoma when BMATB was performed for leucopenia investigation, as reported by his relatives. Again, no definitive cause was indentified. Maybe there is a hereditary cause not yet indentified. We propose that physicians should also report the relevant family history in the British registry so that it would be possible to indentify the causes leading to these complications of BMATB.

Recent reports support that Powered biopsy produce larger sample size with less pain.[6] In the future it should be investigated if this alternative causes fewer complications and should be chosen in patients with either high risk or history of BMATB complications.

In conclusion, we report a case of buttock and thigh haematoma after a BMATB in patient with myelodysplasia and a family history of BMATB complicated with haematoma. It is important to know that BMATB can have complications, even though they are rare, aiding early recognition and therapy. Furthermore, registering and reporting BMATB complications will help clarify their causative agents and mechanism. In our country, there is no such registry as far as we know and we propose to create one in the near future.

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