Neuraxial Anesthesia in a Parturient with Triple-Digit aPTT and Prior Spinal Fusion

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Introduction:

Patients with suspected rare fibrinolytic defects or factor deficiencies may be at increased risk of thrombosis or excessive bleeding, after even minor surgical procedures. During pregnancy, patients similarly exhibit a physiologic hypercoagulable state but may also develop a consumptive coagulopathy causing abnormal hemorrhage if exposed to procoagulant material during obstetric surgery. In parturients with abnormal coagulation cascade at baseline, careful antenatal planning should account for both anesthetic technique and optimal surgical hemostasis. We present a case of newly recognized Hageman factor deficiency (HFD), a rare inherited factor XII deficiency in a parturient with scoliosis and prior lumbar fusion, and we explore its anesthetic and obstetric considerations.

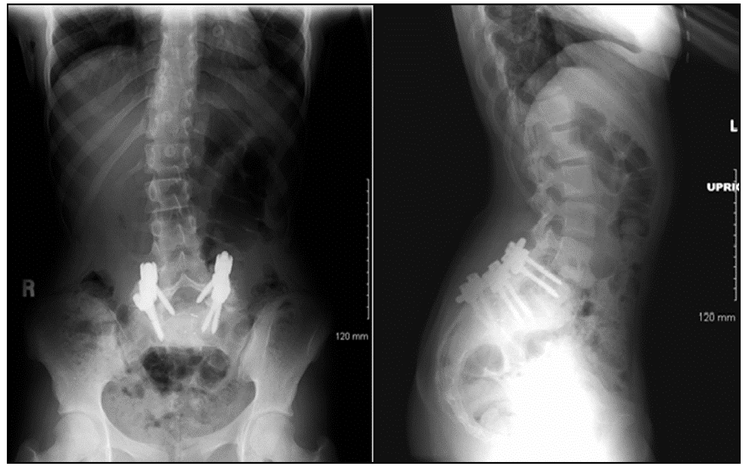

Figure 1. Plain film X-rays revealed scoliosis, mild L5 subluxation, and L4-S1 pedicle screws and vertical bars without additional horizontal bars.

Case Presentation:

The patient was a 23-year-old G1P0 at 36 weeks gestation referred to the Perioperative Clinic by her obstetrician to discuss options for neuraxial analgesia. Given her prior lumbar fusion, she was counseled about the higher risk of dural puncture or patchy regional coverage due to scarring in the epidural space. During her visit, she recalled an autologous blood draw for abnormal lab values prior to her lumbar stabilization at age 11. Routine coagulation labs revealed an INR of 0.9, PT of 12.7, and a markedly elevated aPTT of 138. Subsequent factor assay revealed factor XII activity of less than 1%, confirming the diagnosis of HFD. Consultation with Hematology was arranged, who recommended prophylactic anticoagulation for six weeks postpartum in the event of cesarean section, with no prophylaxis required after vaginal delivery.

She was admitted the following week in active labor, and an epidural catheter was placed atraumatically with a 17G Touhy needle at the L2-3 interspace above her known spinal hardware. She progressed through the stages of labor with minimal discomfort and uniform dermatomal coverage. No abnormal bleeding was noted after vaginal delivery eight hours later. She received standard chemical DVT prophylaxis with subcutaneous heparin, and her catheter was removed without evidence of bleeding or neurologic compromise four hours after her last dose.

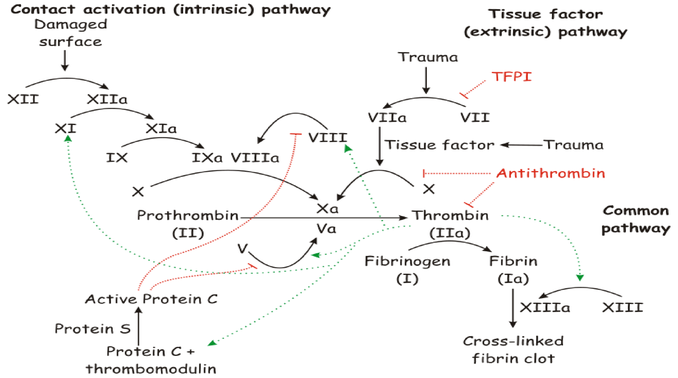

Figure 2. *The Clotting Cascade*. Adapted from *http://medlibes.com/entry/clotting-cascade*

Discussion:

Factor XII deficiency is a rare autosomal recessive disorder, with an estimated incidence of 1:1,000,000 thought to be the result of inherited mutations on chromosome 5. Though previously believed to have poor wound healing, parturients with HFD are associated with recurrent spontaneous abortions.[1] Unlike other factor deficiencies, patients have no clinical bleeding diatheses and diagnosis is typically incidental. While aPTT may be impressively prolonged in vitro, adequate in vivo activation of the intrinsic pathway occurs via factor XI.[2] HFD has been found to confer no additional risk for excessive bleeding, and regional technique is not contraindicated. On the contrary, patients are considered to be at moderate risk for thromboembolic events due to defective activation of fibrinolysis.[3] The postpartum prophylactic anticoagulation recommendation from the patient's hematologist was extrapolated from other low risk thrombophilias, given the elevated risk of thrombosis with normal parturients due to increased clotting factors and decreased protein C+S levels seen during pregnancy.[4] We present a patient with defective fibrinolysis in a hypercoagulable state, underscoring the importance of careful multidisciplinary planning for safe anesthetic care in patients with underlying coagulation disorders.

References:

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