Experiences of Exceptional Epistaxis in Pregnancy

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Background

Epistaxis is a common problem during pregnancy, due to increased nasal mucosa vascularity. The prevalence in pregnant women is 20.3% compared with 6.2% in non-pregnant women [1]. Large volume epistaxis is rare for patients without pre-existing risk factors or conditions, such as the use of anticoagulants or blood clotting disorders.
Massive and severe epistaxis is an uncommon event in pregnancy. It could be life threatening and could affect the normal pregnancy course.

Aims

We report a case of a pregnant woman early in the third trimester, who presented with acute severe bilateral epistaxis (approximately 4L of blood loss), and who required multiple conservative interventions and eventual surgical management to resolve the bleeding with extensive fluid and blood product resuscitation throughout her admission. We have summarised some learnings which may help in future similarly clinical situations.

Case

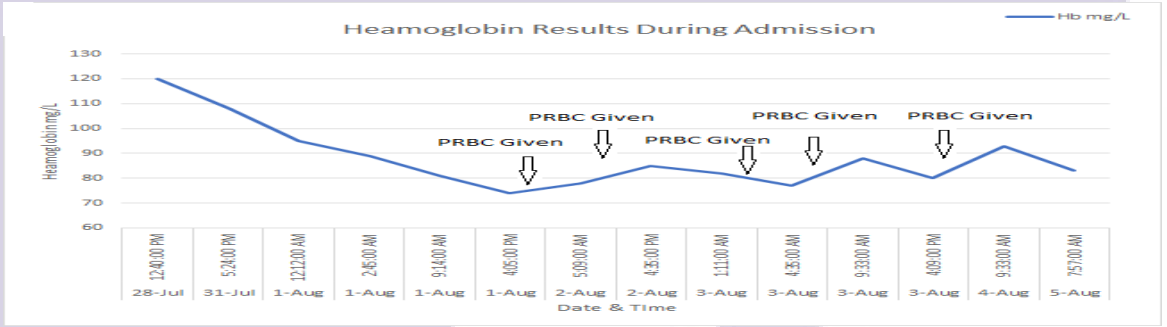
A 34-year-old primigravida at 32 weeks presented with spontaneous severe right-sided epistaxis. An initial mild episode of epistaxis preceded her hospital presentation by 4 days. Her second episode triggered presentation to hospital, and commenced post exercise (no recent trauma) with associated decreased foetal movements. Her medical history was unremarkable. She had no family history of coagulopathies or bleeding disorders, and for medication she was taking iron supplements and pregnancy multivitamins. She reported no previous episodes of epistaxis in her life. Routine antenatal pregnancy blood tests were unremarkable.
Initially we attempted to control the bleeding with a Nasal Balloon Device (Rapid Rhino) inserted into the right nostril, with contralateral nasal pressure. However bleeding then began on left side with associated haemoptysis (presumably from ingesting uncontrolled blood). With ongoing loss from both left and right nasal passages, the Ears Nose and Throat (ENT) team were consulted, who then attended and placed bilateral Nasal Balloon Devices. They also administered IV tranexamic acid and utilised 1:10000 adrenaline-soaked alginate to the left nasal passage. Upon examination there was no clear bleeding point anteriorly and the patient was presumed to have a right anterior bleed likely from anterior ethmoid territory.

Unfortunately haemostasis was not immediate, and within 24 hours of presentation to hospital the patient's haemoglobin had dropped from 108g/L to 74 g/L and she developed tachycardia, which resolved after some intravenous fluid and blood products administration.

Over the course of the following day, the patient stabilised with minimal epistaxis with bilateral Nasal Balloon Devices in-situ. Upon review by ENT 48 hours post presentation, the Nasal Balloon Devices were removed and the patient began to bleed once more. The decision was made to go to theatre and the patient was consented for an examination under anesthetic of the nares + cautery +/- sphenopalatine artery ligation.

Unfortunately, 24 hours post initial EUA nose + cautery +/- sphenopalatine artery ligation, recurrent epistaxis necessitated a return to theatre, during which the anterior ethmoid artery was ligated. By this point in her admission, the patient had required 5x units of PRBC. She was commenced on TXA 500 mg TDS for 5/7 and FESS Nasal spray TDS. The patient commenced on prophylactic antibiotic therapy with IV Cephazolin 2 g every 8 hours and underwent a Cardiotocography (CTG), biophysical profile, and fetal Doppler demonstrated fetal well-being which were all reassuring.
We discharged the patient from the hospital with regular TXA, FESS nasal spray, and an IV iron infusion on the day of discharge, and with nasal packing to ensure the formation of an adequate clot. The patient experienced no further episodes of epistaxis thought her pregnancy

The patient was consented for an elective caesarean at term, due to maternal preference.



Above is a graph outlining the decline in the patient's haemoglobin throughout her admission.
Note that the transfusions of Packed Red Blood Cells stabilised and increased the patient's haemoglobin after the bleeding was controlled following her second operative procedure.
In total it is estimated the patient lost 4 Litres of blood during her admission

Discussion

Epistaxis in pregnancy is common but many cases do not require medical attention.
The prevalence of epistaxis in pregnant women is more than three times that in non-pregnant women [1].
Several conditions predispose to epistaxis during pregnancy. In particular, the elevated oestrogen levels increase the vascularity of the nasal mucosa [2], which may potentiate and prolong the bleeding. Progesterone causes an increase in blood volume, which may exacerbate both vascular congestion and hence bleeding, and may mask blood loss in the event of severe epistaxis, due to apparently effective cardiovascular compensation [3]. Placental growth hormone has systemic effects, including vasodilation [3]. Indirect hormonal effects include vascular inflammatory and immunological changes that may predispose to nasal hypersensitivity and hence to problems such as nasal granuloma gravidarum [3]. In general, delivery or foetal death causes immediate cessation of the nasal bleeding, because some of the underlying factors, such as congestion and hyperemia, disappear.

This case highlights the importance of early involvement of specialist ENT surgical teams, when epistaxis is unresponsive to simple measures. In general, when nasal lesions and clotting disorders cannot be identified, fetal delivery is considered curative, showing that hormonal changes during pregnancy may lead to significant alterations of nasal physiology, with oestrogen causing vascular congestion, mucosal oedema, and rhinitis, known as the "rhinitis of pregnancy". Moreover, pregnancy is associated with significant anatomical and physiological remodeling of the cardiovascular system. Starting at 6-8 weeks of gestation and peaking at 32 weeks, maternal blood volume increases by 40–50% above non-pregnant volumes [4, 5]. Termination of pregnancy resolves hypervolemia and hormonal changes.
Fortunately our case never necessitated the need to consider early delivery of the foetus, due to both eventual clinical stability of the patient, and absence of signs of foetal distress and reassuring foetal investigations.
Significant fluid and PRBC resuscitation and early involvement of specialty ENT services contributed to effective treatment and diagnosis despite the need to return to the operating theatre.

Lessons to be learnt

- Involve specialty services early if conservative measures fail.
- Early aggressive volume resuscitation is vital to maintain a stable haemodynamic state
- Resuscitate and consider re-occurrence of epistaxis, iron infusion and regular tranexamic acid
- Consider delivery of the foetus if the bleeding does not cease despite specialty intervention

References

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