Management of grade V splenic injury with splenic artery embolization in pregnancy: A case report

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Introduction

Trauma is known to be the top contributor for mortality in pregnancy.[1] We managed severe form of splenic injury in pregnancy with splenic artery embolization and avoided laparotomy. We utilised splenic artery embolization to manage grade V splenic injury at 28 weeks of gestation and prolonged the pregnancy until term.

Case Presentation

A 35 -year-old woman who was 28 weeks pregnant was transferred from a regional hospital for splenic injury post blunt trauma from assault with massive haemoperitoneum. She previously had five uncomplicated vaginal births. She does not have any medical comorbidities and has a body mass index(BMI) of 24.

On arrival to the regional hospital, she was hypotensive with a blood pressure of 90/50mmHg and heart rate of 120 beats per minute(bpm). Computerized tomography (CT) showed grade V spleen laceration as per American Association for the Surgery of Trauma (AAST) splenic injury scale with 2 litres of heamo-peritoneum. She was then transfused with 2 units of packed red blood cells prior to transfer to the tertiary unit. Cardiotocography (CTG) on arrival was acceptable for 28 weeks. Obstetrics ultrasound showed a normally grown foetus with normal amniotic fluid and umbilical artery Doppler. There was no evidence of placental abruption in the ultrasound. However, steroids (Intramuscular Betamethasone 11.4mg , 2 doses 24hours apart) were given for fetal lung maturation in anticipation of preterm delivery. 12 hours post admission to ICU, her haemoglobin dropped to 60g/L(Reference range 110-160g/L).She was transfused with another 2 units of packed red blood cells and subsequently proceeded to splenic artery angioembolisation.

Post angioembolisation, she was monitored for 7 days with serial haemoglobin with daily CTG. MRI of the spleen and foetus brain two weeks post angioembolisation showed no obvious hypoxic changes in the foetal brain and the maternal spleen was stable.She was booked for induction at 39 weeks with Foley's catheter followed by syntocinon. Induction process commenced in the daylight hours and surgeons were notified. She did not require any restrictions during labour. She then proceeded to have vaginal birth which was complicated by retained membranes which required removal in theatre under anaesthesia. Her total blood loss from labour was 550mls. Baby was delivered with Apgar score of 9 in 1min and 9 in 5min and weighed 3.1kg.

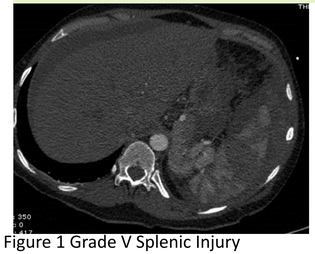

Figure 1 Grade V Splenic Injury

Figure 2 Pre- angioembolisation

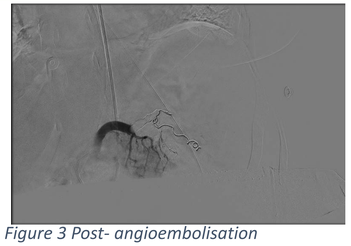

Figure 3 Post- angioembolisation

Result

Trauma is associated with high mortality in pregnancy.[1] The commonest type of injury is blunt abdominal trauma[1]. Maternal and fetal mortality from blunt trauma are 2% and 10% respectively.[2] Splenic injuries in pregnancy are aberrant. There were two case reports published on handling blunt splenic injury with splenic angioembolisation. Both case reports dealt with grade 3 splenic laceration.

We have summarized their findings below

Case Report	Gestation at injury	Severity of injury (AAST)	Outcome
Michael V. Muench (2004)[3]	16 weeks and 4days	Grade 3	Delivered at 35 weeks for PPROM
Y. Athiel (2019)[4]	33 weeks	Grade 3	Delivered at 35 weeks for suspected chorioamnionitis

As we can see, there isn't any available case report which explores severe form splenic injury in pregnancy. We have successfully dealt grade V splenic injury with a minimally invasive technique and prolonged the pregnancy to term. Most importantly, we have avoided laparotomy in this case which could increase risk of preterm labour. In this report, we managed to prolong her gestation up to 38weeks and she had an uncomplicated vaginal birth. Since there isn't any guideline available for splenic trauma in pregnancy, we used the general recommendation. A recent systematic review recommends splenic angioembolization(SAE) for American Association for the Surgery of Trauma (AAST) Grade IV and Grade V for blunt splenic injury. [5]

Conclusion

In conclusion, splenic angioembolization(SAE) can be used for Grade IV and V blunt splenic injury in pregnancy with the aim to prolong the pregnancy as long as possible without compromising both mother and foetus.

References

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