



Case Management Part 2

Summary &  
Review of Literature

# Part 2 – Case Management

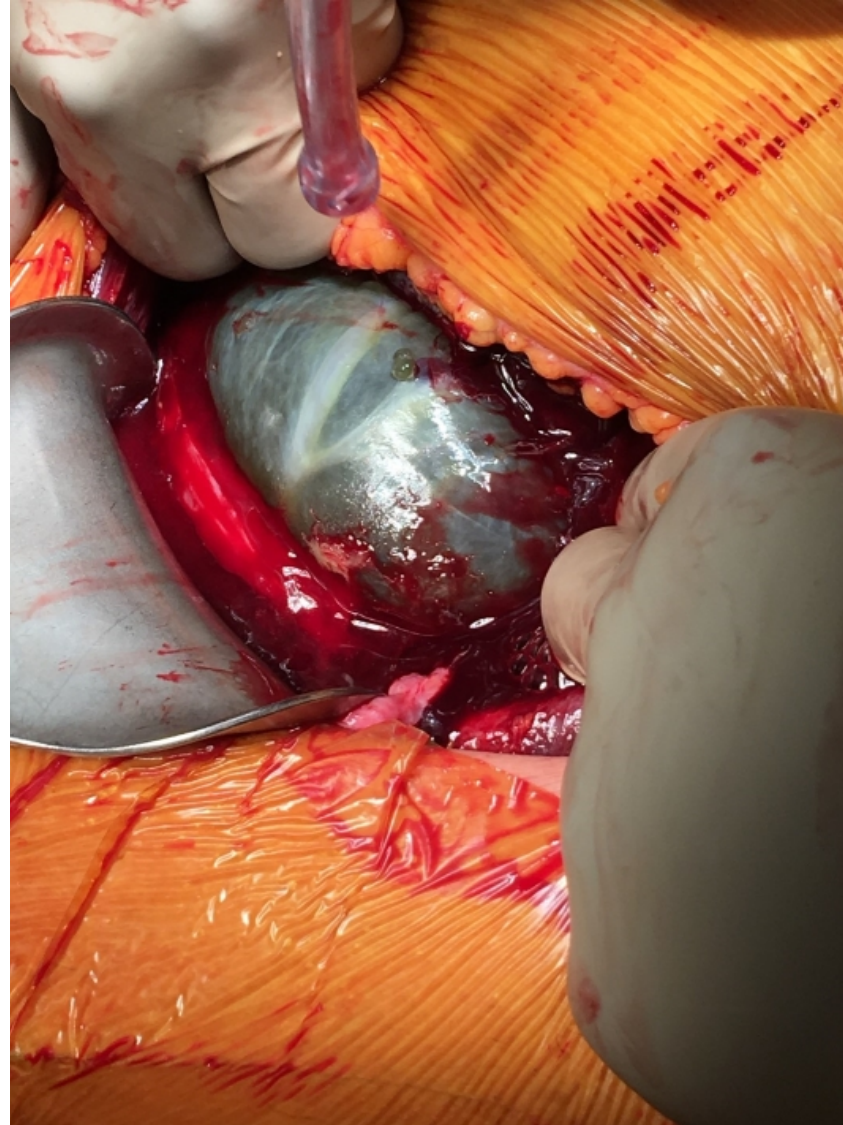


Forty-eight hours prior to the planned cesarean delivery at 35 weeks 4 days of gestation, the patient presented to the hospital with vaginal bleeding and rupture of membranes. Because of our knowledge that the anterior vessel was unsupported in bare amnion in the lower uterine segment, careful hysterotomy was made so as not to lacerate the vessel. Once the amnion was reached, as previously suspected, there was a single exposed vessel seen through the translucent sac. (Image 4 – next slide)

Rupture of membranes was performed lateral to the vessel and the fetus was delivered expeditiously without issue.

Final placental pathology showed eccentric, not velamentous cord insertion with fetal vessels traversing unsupported amniotic membranes.

# Image 4 – Appearance of fetal vessels in amnion at time of uterine incision



Ultrasound images  
courtesy of:

Alex Fong, M.D.  
Magella Medical  
Group, Long Beach,  
CA. (USA)

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# Image 5 – Gross appearance of the fetal vessels jumping across the region where the placenta had involuted



**Ultrasound images  
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Vasa previa occurs when fetal vessels course through the amniotic membranes unsupported by Wharton's jelly or placental tissue, and lie within two centimeters of the internal cervical OS.<sup>4</sup> Vasa previa is generally described as either type 1 (in relation to velamentous cord insertion), or type 2 (in relation to succenturiate placental lobe).<sup>5</sup> Vasa previa can be most accurately diagnosed on transvaginal ultrasound with the use of color Doppler showing fetal vessels in close proximity to the cervical OS.

Risk factors include second-trimester low-lying placenta, placenta previa (including those which have resolved), velamentous cord insertion, a succenturiate placental lobe, assisted reproductive technology, and multiple gestations.<sup>6,7</sup> The majority of affected individuals have at least one risk factor, and additional research suggests that velamentous / marginal cord insertion or placenta previa / low-lying placenta is present in nearly all cases.<sup>5</sup>

# Summary & Review of Literature



One hypothesis of the seeming “migration” of low-lying placentas into vasa previa is that of trophotropism, which describes atrophy and involution of placenta in the poorly-vascularized lower uterine segment.<sup>9,10</sup> As the placenta gradually “migrates” away from the lower uterine segment, the central, or sometimes marginal cord insertion progressively becomes more peripheral, occasionally leaving fetal vessels unsupported within the amniotic membranes.<sup>11</sup>

Our case provides visual validation of the theory of trophotropism in placental involution, which in our patient, occurred sometime between 31 and 35 weeks’ gestation. At 31 weeks, the fetal vessel was well embedded within the anterior placenta, but at 35 weeks’, the placenta had completely regressed, resulting in a bare fetal vessel embedded in the lower uterine amnion. Furthermore, the vasa previa arose from a fundal placental insertion without succenturiate lobe present. Color and power Doppler was of paramount importance in detecting this condition and we propose that it should be performed in all patients with placenta previa and/or low-lying placenta. This will allow for careful surgical planning to be performed should fetal vessels be identified in the setting of a vasa previa.