



## Velamentous and marginal cord insertion: the impacts on pregnancy complications

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### Objective

Velamentous and marginal cord insertion are also considered as abnormal cord insertion. These conditions usually related to some of severe maternal and fetal complications. This study aims to assess the association between the abnormal cord insertions and pregnancy complications.

### Methods

This cross-sectional study included 3227 pregnant women with normal singleton pregnancy who delivered between 22 weeks and 42 weeks of gestation at Hue University Hospital, Vietnam from the period of 5/2017 to 11/2017. These women were divided into 3 groups based on postnatal diagnosis of cord insertion into placenta, including: (1) Velamentous cord insertion group (n=34); (2) Marginal cord insertion group (n=29) and (3) normal cord insertion group (n=3164). We compared the maternal and fetal outcomes between marginal and velamentous cord insertion groups with normal cord insertion group.

### Results

For fetal outcomes, we found that there was an increased risk of abnormal CTG and Small for gestational age for velamentous cord insertion by 5. 2 times (RR=5. 2; 95%CI=3. 14-8. 60) and 7. 69 times (RR=7. 69; 95%CI=4. 44-13. 32) respectively, while marginal cord insertion was not related to these problems. Neither velamentous nor marginal cord insertion was associated with preterm delivery (RR=1. 30; 95%CI=0. 19–9. 01) and (RR=1. 11; 95%CI= 0. 16–7. 73). For maternal complications, both of two types of abnormal cord insertion were not associated with the risk of uterine atony. Whereas the risk of C-section delivery was nearly doubled for velamentous cord insertion (RR= 1. 95; 95%CI=1. 61–2. 36) however not increased for marginal cord insertion (RR=0. 79; 95%CI=0. 46-1. 36). About the postpartum curettage and manual removal of the placenta characteristics, it is showed that there were no association to marginal cord insertion but the risk of these complications were increased significantly for velamentous cord insertion (RR=20. 68; 95%CI=4. 64–92. 17) and (RR=36. 41; 95%CI=18. 22–72. 79), respectively.

### Conclusion

These data suggested that while there was no association between marginal cord insertion and the risk of both fetal and maternal complications, the velamentous cord insertion can increase the risk of abnormal CTG, small for gestational age, C-section delivery, Postpartum curettage and Manual removal of the placenta.

<b>Abnormal CTG</b>	Normal (n= 3164)	197	6.3	-	-
	Marginal (n=29)	3	10.3	<b>1.66</b>	<b>0.56 - 4.89</b>
	Velamentous (n=34)	11	32.3	<b>5.20</b>	<b>3.14 - 8.60</b>
<b>Small for gestational age</b>	Normal (n= 3164)	123	3.9	-	-
	Marginal (n=29)	2	3.4	<b>1.80</b>	<b>0.47 - 6.95</b>
	Velamentous (n=34)	10	29.4	<b>7.69</b>	<b>4.44 - 13.32</b>
<b>C-section</b>	Normal (n= 3164)	1240	39.2	-	-
	Marginal (n=29)	9	31	<b>0.79</b>	<b>0.46 - 1.36</b>
	Velamentous (n=34)	26	76.5	<b>1.95</b>	<b>1.61 - 2.36</b>
<b>Preterm delivery</b>	Normal (n= 3164)	84	2.7	-	-
	Marginal (n=29)	1	3.4	<b>1.30</b>	<b>0.19 - 9.01</b>
	Velamentous (n=34)	1	2.9	<b>1.11</b>	<b>0.16 - 7.73</b>
<b>Postpartum curettage</b>	Normal (n= 3164)	9	0.3	-	-
	Marginal (n=29)	0	0	<b>0</b>	<b>0</b>
	Velamentous (n=34)	2	5.9	<b>20.68</b>	<b>4.64 - 92.17</b>
<b>Uterine atony</b>	Normal (n= 3164)	115	3.6	-	-
	Marginal (n=29)	1	3.4	<b>0.949</b>	<b>0.14 - 6.56</b>
	Velamentous (n=34)	3	8.8	<b>2.43</b>	<b>0.81 - 7.26</b>
<b>Manual removal of the placenta</b>	Normal (n= 3164)	23	0.7	-	-
	Marginal (n=29)	1	3.4	<b>4.74</b>	<b>0.66 - 33.96</b>
	Velamentous (n=34)	9	26.5	<b>36.41</b>	<b>18.22 - 72.79</b>