

INTRAPARTUM ULTRASOUND TO DETECT A BANDL'S RING: A CASE-SERIES

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OBJECTIVE

- To describe and demonstrate the feasibility of the use of intrapartum ultrasound to diagnosis Bandl's ring in labour.

METHODS

- **Design:** A single-centre case-series.
- The study opportunistically identified women in labour between July 2021-December 2022 undergoing intrapartum ultrasound to assess fetal head position in labour. Sonography was performed by an experienced operator. Cases of Bandl's ring were identified. Sonographic features of Bandl's ring were identified and sonographic findings confirmed at caesarean section in a subset.

RESULTS

- 13 cases of Bandl's ring were identified on intrapartum ultrasound. 11 women were primiparous and 2 had a previous caesarean section. The primary indication for intrapartum ultrasound was delay in the second stage of labour. Sonographically the Bandl's ring was visualised in the sagittal view as a localised thickening and indentation of the anterior myometrium encompassing the overlying serosa seen between the lower and upper uterine segment.

- Of the 13 women, 9 babies were found to be in the occiput posterior whilst 4 were identified in the occiput transverse position. Successful instrumental delivery was achieved in 4 cases with the remaining cases undergoing emergency caesarean section including 1 with failed instrumental delivery. All cases delivered by caesarean section had a diagnosis of Bandl's ring confirmed intraoperatively. Tocolysis was required for delivery of 5 cases.

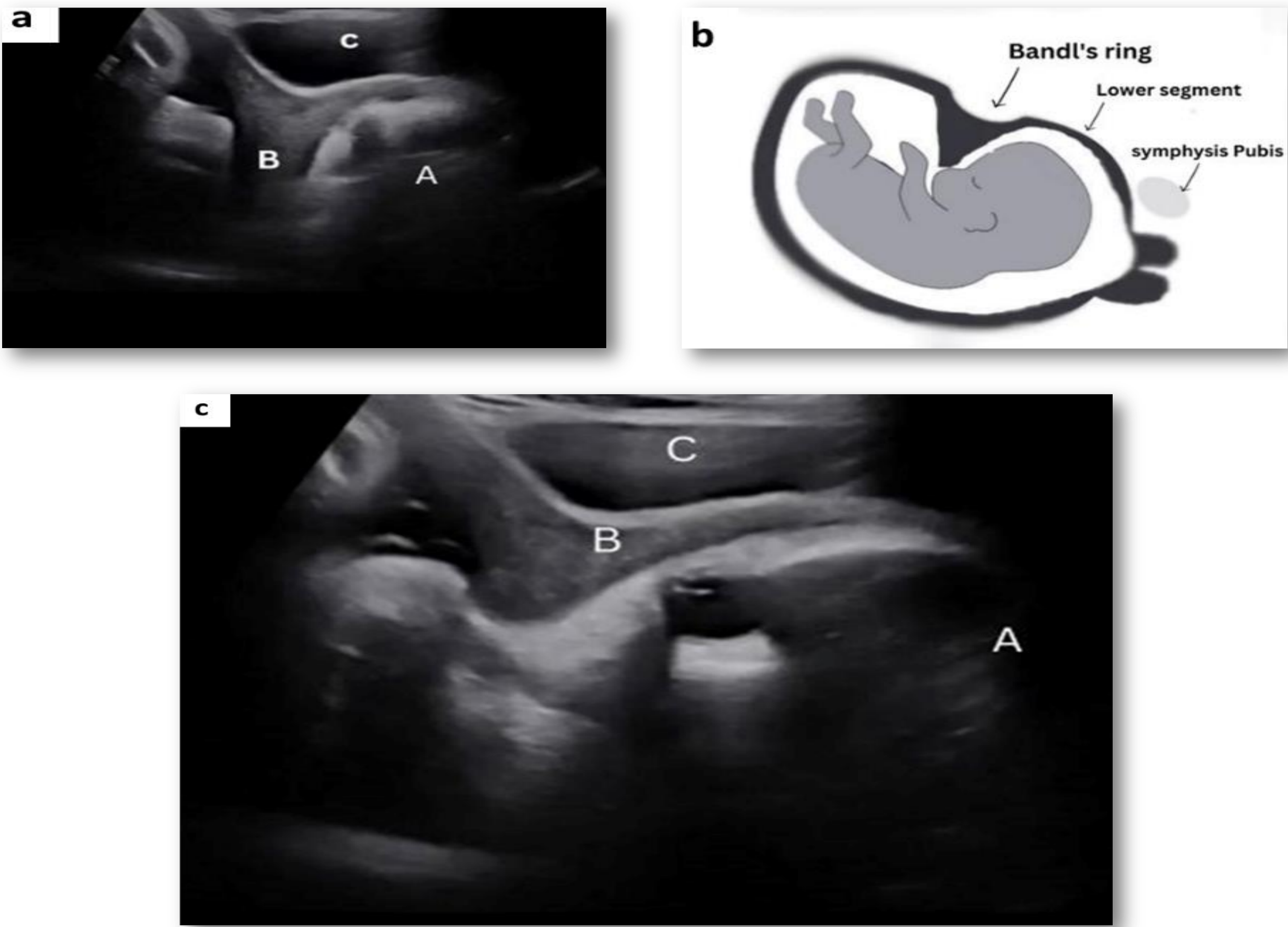


Figure (1): a, c - intrapartum ultrasound of Bandl's ring (A=Fetal Head, B=Bandl's Ring, C=Urinary Bladder). b - Diagram of sonographic findings

Table (1): Summary of Labour Characteristics

	Parity	GA	BMI	Onset of labour	Position	Confirmed at CS	Complications/notes	
Case 1	P0	38+5	35	IOL,SROM	DOP	EmCS	Yes	Angle extension
Case 2	P0	40+2	26.7	SOL,SROM	ROT	Ventose ,	Not applicable	Shoulder dystocia
Case 3	P0	40+2	34	SOL,SROM	ROP	EmCS	Yes	bilateral angle extension, lower segment trauma
Case 4	P1, Previous CS	41+2	30	IOL,ARM	LOT	Failed Forceps, EmCS	Yes	Terbutaline needed, Difficulty delivering the head
Case 5	P0	39+4	26.8	SOL,SROM,	Asyncilitic OT	Manual rotation ,NBFD	Not applicable	
Case 6	P0	41+1	30	SOL,SROM	ROA	DOP at first stage rotated to OA , delivery by Forceps	Not applicable	Bandl's ring noted in the first stage
Case 7	P0	37+1	31	SOL,SROM	OP	EmCS	Yes	GTN needed, Difficulty in delivering the head
Case 8	P0	39		IOL SROM	Deflexed OT	EmCS	Yes	GTN needed
Case 9	P0	38+3	33	IOL SROM	Deflexed OP	EmCS	Yes	GTN needed, difficult delivery
Case10	P0	37+3	19.7	IOL SROM	Deflexed OP	NBFD	Not applicable	
Case11	P0	37+3	44	IOL SROM	OP	EmCS	Yes	GTN needed
Case12	P0	38+2		IOL SROM	OP	EmCS	Yes	GA
Case13	P1	39+3		SOL,VBAC	OP	EmCS	Yes	Spinal

CONCLUSION

- To our knowledge this is the first case-series assessing the intrapartum detection of Bandl's ring alongside delivery outcome. It demonstrates intrapartum ultrasound is a useful tool in aiding decision-making for delivery, including through the diagnosis of features of an obstructive labour. Further research is needed to elucidate its most effective use for improving obstetric outcome.