

## OBSTETRIC SHORT COMMUNICATION

# Puerperal uterine inversion: analysis of three cases managed by repositioning, and literature review

A. K. MOHANTY and A. K. TREHAN

Dewsbury and District Hospital, West Yorkshire, UK

### Introduction

Acute puerperal uterine inversion, though rare, is a well-recognised obstetric complication. It must not be forgotten while dealing with a case of postpartum haemorrhage and shock. Successful management and reduction of morbidity and mortality rates are largely dependent upon prompt recognition.

Although mismanagement of third stage of labour is generally conceded to be the immediate cause of puerperal uterine inversion, it may occur spontaneously depending upon certain predisposing factors (pathological conditions of the uterus and its contents e.g. adherent placenta, short cord, congenital weakness or anomalies, fundal implantation of the placenta, tumours etc.), or it may follow more obvious events such as a sudden increase in intra-abdominal pressure (such as coughing, sneezing or straining) before contraction of the uterine muscles (Kitchin *et al.*, 1975). The disparity between vigorous, aggressive conduct of third stage and the rarity of inversion supports the importance of predisposing factors (Bunke and Holmeister, 1965). The cardinal symptoms are haemorrhage, shock (which may be haemorrhagic, neurogenic or a combination of both) and pain, although it could be symptomless. Palpable dimpling or an apparent absence of the fundus per abdomen suggests inversion, but is often overlooked and the diagnosis ultimately depends upon the demonstration of the mass in or outside of the vagina. Thus routine postpartum examination of the fundus per abdomen along with vaginal exploration when indicated will establish the diagnosis even before the appearance of any symptoms.

This article describes three cases of acute uterine inversion, their management and outcome in a district general hospital.

### Case 1

J. H., a 30-year-old primigravida, was booked at 16 weeks' gestation. Booking scan at 18 weeks did not mention placental localisation. Her 34 weeks' haemoglobin and packed cell volume (PCV) were 10.7 g% and 31.2 respectively. She was admitted to the delivery suite at term + 6 days with spontaneous onset of labour. First stage of labour lasted for 9 hours and 50 minutes. Second stage was delayed and syntocinon was infused according to unit protocol. The baby was delivered by low forceps because of

poor maternal efforts secondary to exhaustion. The duration of the second stage was 2 hours and 45 minutes. Syntometrine (1 ml) was injected intramuscularly after the delivery of the anterior shoulder. The placenta was delivered by controlled cord traction. Acute uterine inversion was diagnosed immediately by the absence of contracted uterus per abdomen and was confirmed by vaginal examination. Immediate repositioning was attempted but was unsuccessful due to a contraction ring around the inverted part. Repositioning was carried out under general anaesthesia. She was transfused with 2 units of blood. Time from delivery of the baby to repositioning of the uterus was 15 minutes. The haemoglobin and PCV on discharge (third day) was 10.5 g% and 30.9 respectively. Blood loss was approximately 1045 ml.

### Case 2

K. Y., a 36-year-old para 1 + 2, was booked at 16 weeks' gestation. Her previous pregnancy and labour were uneventful. Scan at 18 weeks showed posterior placenta but not low lying. Her haemoglobin and PCV at 34 weeks were 12 g% and 36.8 respectively. She was admitted to the delivery suite at 38 weeks of pregnancy with spontaneous labour. The first stage lasted for 5 hours and 10 minutes and the second stage was 2 hours and 26 minutes. The baby was delivered by Neville Barnes forceps the indication being failure to progress in second stage of labour. The placenta was delivered by controlled cord traction. Acute inversion was diagnosed immediately before removal of the placenta. Immediate repositioning was attempted without success. Repositioning was successful under general anaesthesia. The time interval from delivery of the baby to repositioning of the uterus was 54 minutes. 2 units of blood were transfused. Her haemoglobin and PCV on discharge (third day) was 8 g% and 24.8 respectively. Estimated blood loss was 2800 ml.

### Case 3

R. B., a 22-year-old primigravida, was booked at 11 weeks, gestation. Booking scan at 18 weeks showed posterior placenta but not low lying. Her haemoglobin and PCV at 34 weeks were 12 g% and 33.8 respectively. Labour was induced at term + 13 days with prostin. Labour progressed quite rapidly. The first stage lasted only 2 hours 45 minutes and

second stage 35 minutes. Placenta was delivered by controlled hactin. After delivery of the placenta the uterus was felt per abdomen and was found to be contracted but there was a severe haemorrhage. After 45 minutes she was re-examined per abdomen and it was said that the uterus was well contracted. Vaginal examination revealed a dark bluish friable bleeding mass in the vagina. Assuming it to be a form cervix and as attempts at haemostasis failed the vagina was packed. As the woman's condition deteriorated she was transfused with 7 units of blood and then examined under anaesthesia. This confirmed a diagnosis of uterine inversion which was corrected by manual repositioning. After the procedure the patient was transferred to the intensive care unit where she received 2 more units of blood. Her haemoglobin and PCV improved to 13 g% and 36.8 respectively. The time interval between delivery of the baby and uterine repositioning was 5 hours and 25 minutes with approximate blood loss of 4050 ml.

### Discussion

The incidence of uterine inversion has been reported to vary from 1:740 to 1:2300 (Kitchin *et al.*, 1975) although in this hospital only these three cases have been reported in the past few years. It is easy to assume that these inversions were related to the conduct of the third stage of labour, specifically cord traction, although in the first and the third cases in this series it is difficult to exclude other factors such as fundal placenta which could not be totally ruled out. Although in the second case the placenta had not separated at the time of inversion, none of them had a morbidly adherent placenta. The first two cases were diagnosed before any of the classical symptoms occurred because of routine postpartum suprapubic examination of the uterus along with vaginal exploration. But unfortunately in the third case, a contracted uterus was apparently felt per abdomen and the diagnosis missed even after repeated examination and a false impression of cervical/vaginal tear was made which lead to unsuccessful attempts at haemostasis. This delayed the repositioning for 325 minutes with heavy blood loss of at least 4 litres and subsequent ICU care. This is in sharp contrast to the first case diagnosed and managed within 15 minutes with blood loss of only 1045 ml. Preventative measures should be directed towards careful management of third stage by avoiding excessive fundal pressure and undue cord traction. Oxytocics should be withheld if the diagnosis is suspected in order to attempt an immediate manual repositioning of the inverted fundus (Kitchin *et al.*, 1975)

In all the cases of this series oxytocics were given after anterior shoulder delivery according to unit protocol followed in this hospital and so the immediate attempt to reposition the inverted uterus was not successful in the first two cases although they were diagnosed early. The morbidity as evident from the amount of blood loss was related to the time interval between baby delivering and repositioning of the uterus. Repositioning under general anaesthesia (halothane) which was successful in all our cases. Manual repositioning is carried out using the fingers

of one hand in the vagina and applying pressure in an area adjacent to the cervix to replace first the portion of the uterus which inverted last (Bell *et al.*, 1953). Another variation of manual replacement involves lifting the uterus into the abdominal cavity above the level of umbilicus with the vaginal hand, enabling passive action of the broad ligaments to help correct the malposition. (Kitchin *et al.*, 1975) O'Sullivan's hydrostatic method, has been shown to be effective in a number of cases of uterine inversion (O'Sullwar, 1945). Use of terbutaline sulphate and magnesium sulphate has been reported in an attempt to avoid the need for general anaesthesia (Catanzarite *et al.*, 1986). Regardless of the method of vaginal replacement employed, careful manual exploration of the uterus afterwards is essential to rule out the possibility of uterine rupture occurring either during the course of inversion or its replacement. In those rare patients in whom manual replacement is not successful, an operative approach may be indicated either abdominally as described by Huntington *et al.* (1928) or that of Haultain (1901) or vaginally. Fortunately, these operative interventions are rarely needed.

### Conclusion

A high index of suspicion should be maintained for the possibility of inversion of the uterus in all cases of post partum haemorrhage. Careful exploration of the cervix along with abdominal examination is the key to prompt recognition of this condition. Appropriate measures to counteract and prevent shock should be instituted early. The method of replacement will vary according to the circumstances, but if immediate recognition is achieved and adequate facilities are available, manual replacement should be possible in virtually all cases. Abdominal or vaginal operative procedures will rarely be required for acute inversion and are generally effective if needed.

### References

- Bell J. E., Wilson G. F. and Wilson L. A. (1953) Puerperal inversion of the uterus. *American Journal of Obstetrics and Gynecology*, **66**, 767–780.
- Bunke J. W and Hofmeister F. J. (1965) uterine inversion: obstetrical entity or oddity. *American Journal of Obstetrics and Gynecology*, **91**, 934–940.
- Catanzarite V. A., Moffitt K. D., Baker M. L., Awadalla S. G., Argubright K. F. and Perkins R. P. (1986) New approaches to the management of acute puerperal uterine inversion. *Obstetrics and Gynecology, Supplement 3*, **68**, 7S–10S.
- Haultain F. W. N. (1901) The treatment of chronic uterine inversion by abdominal hysterectomy, with a successful case. *British Medical Journal*, **2**, 974–977.
- Huntington J. L., Irving F. C. and Kellog F. S. (1928) Abdominal reposition in acute inversion of the puerperal uterus. *American Journal of Obstetrics and Gynecology*, **15**, 34–40.
- Kitchin J. D., Thiagarajah S., May H. V. and Thomson W. N. (1975) Puerperal inversion of the uterus. *American Journal of Obstetrics and Gynecology*, **123**, 51–58.
- O'Sullivan J. V. (1945) Acute inversion of the uterus. *British Medical Journal*, **2**, 282–283.