International Journal of Reproduction, Contraception, Obstetrics and Gynecology
David L et al. Int J Reprod Contracept Obstet Gynecol. 2019 Oct;8(10):4107-4110
www.ijrcog.org

pISSN 2320-1770 | eISSN 2320-1789

DOI: http://dx.doi.org/10.18203/2320-1770.ijrcog20194393

Short Communication

Clinical perspective: caesarean hysterectomy for placenta accreta spectrum and role of pelvic packing

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Received: 16 July 2019
Revised: 05 September 2019
Accepted: 09 September 2019

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ABSTRACT

Caesarean hysterectomy (CH) is considered the gold standard for management of morbidly adherent placenta, now termed as placenta accreta spectrum (PAS). If bleeding is not controlled following removal of uterus, it is sometimes necessary to pack the pelvis and continue monitoring with correction of bleeding and physiological parameters in operating room and intensive care unit. This now comes under the damage control approach, being driven primarily by abnormal physiology rather than anatomical reconstruction. The pelvic packs are removed after about 48 hours. This retrospective study was done in patients with antenatal diagnosis of PAS who required CH, comparing those who required pelvic packing with those who did not. The variables compared were pre-operative (clinical and radiological), intra-operative (duration of surgery, blood loss and transfusion requirements of whole blood and blood products), and the final histopathological diagnosis. Outcome variables in terms of duration of hospital stay, re-admissions, re-laparotomy and complications were also compared. Over two years, three of eight patients with PAS required pelvic packing following CH. There were no differences between the two patient groups with any of the predictor variables or outcomes other than requirement of blood products. This suggests pelvic packing is a safe and efficacious procedure in intractable haemorrhage following CH for PAS. Pelvic packing needs greater awareness amongst obstetricians as the incidence of PAS is likely to increase.

Keywords: Caesarean hysterectomy, Damage control approach, Disseminated intravascular coagulation, Pelvic packing, Placenta accreta spectrum, Postpartum haemorrhage

INTRODUCTION

Postpartum haemorrhage (PPH)

It is an obstetric emergency with several medical and surgical interventions for management. Laparotomy is generally considered a last resort for bleeding due to uterine atony, after uterotonic drugs and manual uterine massage and compression. However operative interventions are considered sooner if there is a suspected placenta accreta spectrum.

Placenta accreta spectrum (PAS)

It was formerly called morbidly adherent placenta. It refers to abnormal trophoblast invasion into the myometrium. This happens when placenta implants at an area of defective decidualization. The abnormal endometrial-myometrial interface is related typically to previous caesarean section or rarely myomectomy. Thus, the placenta cannot spontaneously separate at delivery and attempts at removal can result in life-threatening haemorrhage.[1]

PAS has three types depending on location of anchoring placental villi:

- Placenta accreta - attached to the myometrium
- Placenta increta - penetrating the myometrium
- Placenta percreta-penetrating beyond the myometrium to reach uterine serosa or adjacent organs

Caesarean Hysterectomy (CH)

It is a definitive treatment of postpartum uterine bleeding. The downward spiral of continued blood loss in PPH irrespective of etiology starts from a severe coagulopathy due to massive loss of coagulation factors (disseminated intravascular coagulation). Resultant hypovolemia, tissue hypoxia, hypothermia, electrolyte abnormalities, and acidosis further compromise physiology.[2]

Caesarean hysterectomy is now considered to be the least morbid approach and the gold standard for controlling haemorrhage in placenta accreta spectrum. With improving prenatal diagnosis, hysterectomy can often be anticipated and discussed with the patient before caesarean section.

Damage control approach

Criteria were proposed for an "in extremis" state where damage control approach is considered. These include pH less than 7.30, temperature less than 35°C, combined resuscitation and procedural time more than 90 minutes, non-mechanical bleeding, and transfusion requirement more than 10 units packed red blood cells.[3] To abort the downward spiral from continuous blood loss, the bleeding area is tightly packed, and the skin is closed to prevent heat and moisture loss. Replacement of appropriate blood products and correction of physiologic parameters occurs in the operating room and continues in the intensive care unit as soon as patient is stable enough for transfer.[2] This lessens the risk of abdominal compartment syndrome, which is more difficult to define postpartum since post-caesarean intra-abdominal pressure appears to be higher than in the general surgical population.[4,5] If there is evidence of clinically significant ongoing bleeding, arterial embolization by an interventional vascular specialist or return to the operating room needs to be considered. A large bore drainage catheter in the pelvis can help in recognizing ongoing bleeding. After 48 hours, if the patient is stable and coagulation defects are corrected, packs are removed in the operating room. Removal of packs should not be delayed more than 72 hours.

With increasing incidence of placenta accreta spectrum, the authors review their recent experience with CH for this indication and compare the outcomes of those requiring pelvic packing.

The aim of this study was to review the experience with placenta accreta spectrum, with particular interest in pelvic packing as a temporary measure in intractable postpartum haemorrhage following caesarean hysterectomy.

METHODS

This was a retrospective chart review of patients diagnosed to have placenta accreta spectrum on antenatal imaging as well as histopathology and comparison of those who required pelvic packing in terms of both risk and outcome factors, to assess safety and efficacy. One of the authors happened to be involved in all the cases. The decision for pelvic packing was taken on table collectively with the involvement of team of obstetricians, urologists and in one case, the vascular surgeons. The variables compared were pre-operative (clinical and radiological), intra-operative (duration of surgery, blood loss and blood and blood products transfused), and the final histopathological diagnosis. Outcome variables in terms of duration of hospital stay, re-admissions and complications were also compared.

RESULTS

In this tertiary referral centre, which has 14,000 deliveries in a year, we had 8 patients in two years who required CH for proven PAS. Of these 3 required pelvic packing. Table 1 lists variables for all 8 cases.

Table 1: Patients with caesarean hysterectomy for placenta accreta spectrum.

Patients	1	2	3	4	5	6	7	8
Age (years)	22	28	24	38	26	29	34	32
Number of previous LSCS	2	2	1	2	1	2	2	2
Gestational age (weeks)	26	36	37	37	31	37	37	35
Comorbidities	0	0	0	Hypothy	0	Hypothy	GDM	0
USG diagnosis	Accreta	Accreta	Accreta	Accreta	Percreta	Accreta	Accreta	Accreta
MRI done	N	N	Y	Y	Y	Y	Y	N
MRI diagnosis	NA	NA	Placenta accrete percreta not r/o	Placenta accreta	Placenta percreta	Placenta accreta	Placenta percreta	Placenta accreta

Patients	1	2	3	4	5	6	7	8
Elective/ emergency	Emerg	Elect	Elect	Elect	Elect	Elect	Elect	Emerg
Duration of surgery	180 min	270 min	195 min	240 min	210 min	270 min	150 min	150 min
Pelvic packing	Yes	Yes	Yes	No	No	No	No	No
Year	2016	2016	2017	2017	2017	2018	2018	2018
Total blood loss	5	4	6.5	6	8	6.5	5.5	8
Packed cells	12	17	15	20	12	7	6	7
Whole blood	3	1						
Fresh frozen plasma	12	13	12	8	8	8	4	4
Platelet rich concentrate	16	12	12	8	4	2	3	2
Cryoprecipitate	12	15	15	12	12	12	6	6
Final HPE diagnosis	A	I	I	A	I with focal P	I	A	I
Duration of ICU stay	4	5	1	1	2	1	1	1
Duration of hospital stay	16	32	13	6	14	11	12	6
Re-laparotomy	0	1	0	0	0	0	0	0
Re-admissions	1	1	1	0	0	0	1	0
Ureter or bowel complications	Ureter injury required a stent	0	0	0	0	0	0	0

A: Accreta, I: Increta, P: Percreta

Only one of the patients had to be taken up in early pregnancy, at 26 weeks. One was referred with intra-uterine death at 31 weeks. All others were nearing term. All eight had antenatal ultrasonography suspecting PAS, five had MRI also done. Two were taken up as emergency, referred from elsewhere. The mother taken up at 26 weeks had come with antepartum haemorrhage and hypotension and required pelvic packing following CH. The second came in spontaneous labour at 35 weeks but did not need packing. The other six were planned elective CH of which two required packing. Two of the mothers had hypothyroidism, and one had gestational diabetes mellitus, but none of them required packing post CH.

DISCUSSION

PAS is more common now. This is the trend across several countries, as summarized in the consensus guidelines for epidemiology of PAS from the International Federation of Gynaecologist's and Obstetricians (FIGO).[6]

Previous studies for pelvic packing have not been specific for PAS. PAS has some differences from other causes of PPH, particularly those associated with uterine atony. Antenatal diagnosis is possible for PAS, though it may not be accurate for subtyping accreta versus increta or percreta. The Caesarean hysterectomy can be done in a planned scenario most often. A multidisciplinary team is needed in operating room. If bleeding does not stop within 90 minutes, it would be worthwhile to consider packing and then monitoring and correction of parameters in OR and ICU. Surgery can be completed later after 48 hours with pack removal. This damage control approach seems well suited for this situation.[7] There are several limitations to the conservative approach to management of PAH, and CH remains the gold standard.[8]

One study from Tunisia had 39 patients with severe PPH leading to CH. Of these 17 required packing. Pelvic packing was able to control bleeding in all. There were no bowel injuries or necrosis. Laboratory values were similar at the end of the surgical procedure and 24 hours after. Fever was more common in the packing group (53% versus 9%; p = 0.04); but there was no difference generalized sepsis, or renal failure, ARDS, deep vein thrombosis, pulmonary embolism and multi organ failure.[9]

The other multi-centre study was retrospective, based on questionnaires to hospitals in France. 51 participating centres had 1.4 million deliveries over 10 years. There were 718 CH done (1 in 2000 deliveries) of which 53 required pelvic packing (1 of 14 CH). The success rate of abdominal packing was 62% (33/53). Among the 20 (38%) women in whom bleeding did not stop following the use of abdominal packing, 6 required a second surgical intervention, 6 a pelvic artery embolization and the 8 other women had "only" further intensive resuscitation and pharmacological treatments. Final mortality rate was 24% (13/53).[10]

The lack of appreciable trends in this small study seems to suggest that in this given context of pelvic packing for persistent bleeding post CH for PAS, this is a safe and efficacious procedure. The questions raised from this study are whether surgeon experience and technique will alter the morbidity and degree of derangement of physiology. The experience of the authors suggests that dissection technique of bladder from uterus and early urology involvement could shorten the duration of surgery and involve less torrential bleeding. The recent

FIGO consensus guidelines on surgical management of PAS also discusses this in detail.[7]

CONCLUSION

Our results suggest that abdominal packing, used for duration of 24 to 48 hours, is an option as an ultimate procedure to control persistent life-threatening postpartum haemorrhage following peripartum hysterectomy. There were no complications following pack removal like bowel injury or prolonged sepsis. Experience with surgical technique in caesarean hysterectomy for PAS is most important, but pelvic packing should be kept in mind as an option when haemorrhage is persistent.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: David L, Abraham A, Regi A. Clinical perspective: caesarean hysterectomy for placenta accreta spectrum and role of pelvic packing. Int J Reprod Contracept Obstet Gynecol 2019;8:4107-10.