

# Secondary postpartum hemorrhage: a review of the literature

Biomedicine and Surgery

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## ABSTRACT

Postpartum hemorrhage (PPH) may occur shortly after delivery or, less often, days later. The most common causes of secondary PPH are retained products of conception, subinvolution of the placental bed, and/or infection. The etiology of secondary postpartum hemorrhage is diverse and management is dependent on identifying the cause and tailoring treatment appropriately. The main aims of treatment are to provide basic resuscitation, establish a cause for the bleeding, and tailor the treatment (medical and/or surgical) according to the cause. Sometimes the cause cannot be determined. Surgical procedures (dilation and curettage, suction curettage) are often effective when medical management fails.

**KEYWORDS:** puerperium; secondary postpartum hemorrhage

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**Date received:** August 8th 2017

**Date accepted:** September 16th 2017

## INTRODUCTION

Secondary (also called late) PPH is any abnormal or excessive bleeding from the birth canal occurring between 24 hours and 12 weeks postnatal (1-3). Unlike primary postpartum hemorrhage, there is no clear definition for quantity of blood loss and this can vary from 'increased lochia' to massive hemorrhage (4). In developed countries, two per cent of postnatal women are admitted to hospital with this condition, half of them undergoing uterine surgical evacuation; in developing countries it is a major contributor to maternal death (3,5,6). Most studies report peak incidence is at one to two weeks postpartum (3). While primary PPH is an acute condition requiring immediate management, the bleeding in secondary PPH is usually not so severe. The patient may complain of spotting on and off for days after her delivery with an occasional gush of fresh blood.

## ETIOLOGY

It is usually caused by retained products of conception, subinvolution of the placental bed, and/

or infection, remaining in the uterus and causing infection or preventing the uterus from contracting (3). Rare causes include: pseudoaneurysm of the uterine artery, arteriovenous malformations, choriocarcinoma, undiagnosed carcinoma of the cervix, adenomyosis, infected polyp or submucosal fibroid, inherited or acquired bleeding diatheses, uterine diverticulum, excessive bleeding with resumption of menses, hypoestrogenism, dehiscence of a cesarean scar (1,3,7-18). The cause cannot be determined sometimes.

## MANAGEMENT OF SECONDARY POSTPARTUM HEMORRHAGE

### Resuscitation

For the patient who is hemodynamically unstable, aiming the immediate hemodynamic stabilization of the patient is the priority. Often, blood and plasma unit transfusion is required. Blood and blood products should be given according to blood loss, rather than waiting and using the response to initial fluid administration and hemoglobin and

DOI: [10.5281/zenodo.1219223](https://doi.org/10.5281/zenodo.1219223)

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coagulation results as the trigger for the infusion of blood (19,20). Treatment usually falls into one of two options: surgical evacuation of the uterine cavity or medical treatment (4).

### CLINICAL PRESENTATION

The amount of blood loss at presentation varies but most are hemodynamically stable. A thorough history will provide information relating to cause and should include details regarding parity, labor, mode of delivery, third-stage or puerperal complications and any relevant medical and family history. Clinical findings are nonspecific. Clinical signs and symptoms at the time of presentation may include offensive lochia, abdominal cramping, uterine tenderness, pyrexia, enlarged uterus and an open cervical os (20).

Our initial approach to management is based on the suspected cause of bleeding. No data from randomized trials are available to guide management (5).

### RETAINED PRODUCTS OF CONCEPTION

Vascularity of echogenic intracavitary material is a key finding as vascularity on color Doppler suggests retained products. If no intracavitary mass, endometrial fluid, or vascularity is seen and the endometrial thickness is thin, retained products are not likely (21).

Examination under anesthetic and surgical evacuation of the uterus should be considered if retained placental tissue is suspected clinically or after ultrasound examination. This has good reported success rates, with bleeding stopping promptly in all 72 women undergoing evacuation of the uterus for secondary postpartum hemorrhage in one study, despite only 36% having proven histological evidence of retained tissue (22).

### SUBINVOLUTION OF THE PLACENTAL SITE

Initial approach for suspected subinvolution of the placental site, is administration of uterotonic agents. According to "Up to date" guidelines options include methylergonovine (0.2 mg intramuscularly, repeated every two to four hours up to three doses), or intramuscular carboprost tromethamine (250 mg intramuscularly; up to eight doses at intervals at least 15 minutes apart), and/or oxytocin infusion. If uterus is firm, these agents will not be useful (1).

When medical management is unsuccessful, surgical procedures (dilation and curettage, suction curettage) are often effective (even if retained placental or membrane fragments cannot

be identified sonographically) (4,20). A study of 132 consecutive women with secondary PPH reported 75 (57%) were initially treated with surgical evacuation, which was successful in 67 (90%) (5). Of the 57 women initially managed medically, treatment was successful in 41 (72%); 16 women had continuing symptoms, of whom 12 subsequently underwent surgical evacuation. Tissue specimens were obtained at surgery in only 38 women, and just one-third of these had histological confirmation of placental tissue. The histologic diagnosis of placental subinvolution is based on dilated myometrial arteries with hyaline material replacing the medial layer, partial occlusion by thrombi of variable age, and extravillous trophoblast in and around the placental bed vessels (1,22,23).

In high-risk patients, who can be refractory to uterotonic drugs or uterine curettage, selective arterial embolization has been effective for controlling severe bleeding (2,24,25). If percutaneous therapy fails, hysterectomy may be required (1).

### ENDOMETRITIS

Endometritis is more common following prolonged rupture of membranes, prolonged labor, emergency Cesarean section or with a retained placenta requiring manual removal (20). Often, the first symptoms are lower abdominal pain and uterine tenderness, followed by fever; most commonly within the first 24 to 72 h postpartum. Chills, headache, malaise, and anorexia are common. Sometimes the only symptom is a low-grade fever. Pallor, tachycardia, and leukocytosis usually occur, and the uterus is soft, large, and tender. Discharge may be decreased or profuse and malodorous, with or without blood. Under these circumstances, we prescribe broad-spectrum antibiotic therapy. However, some clinicians administer antibiotics to all patients with secondary PPH, including those without obvious signs of infection. Rare, but potentially lethal causes of endometritis include *Clostridium sordellii* (25-28), *Clostridium perfringens* (29) and streptococcal or staphylococcal toxic shock syndrome (30-33).

### CONCLUSION

Our initial approach to management secondary postpartum hemorrhage is based on the suspected cause of bleeding. Whether to initially manage secondary PPH medically or surgically is still a relatively unstudied aspect of the care of these patients.

There is no randomized controlled trials to inform management of women with secondary postpartum hemorrhage. This problem deserves more attention than it has received in recent years.

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