

# “Sumo-compression” Stops Post Partum Haemorrhage

## „Sumo-Kompression“ stoppt postpartale Blutungen

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### Key words

- post partum haemorrhage
- Atony
- Compression

### Schlüsselwörter

- postpartale Blutung
- Atonie
- Kompression

### Abstract

Post partum haemorrhage (PPH) from uterine atony or extensive trauma of vaginal tissue is a major cause of maternal mortality. Compression of vaginal tissue and uterus by tightly packing the vagina with laparotomy pads is described as a novel approach for the management of PPH. A bandage is placed as a very tight belt above the uterus. Counterpressure is achieved by a second bandage, which runs from anterior to posterior and is tied to the belt pressing the pads inside the vagina firmly against the uterus. The term “Sumo-compression” was chosen to remind people of the pants of the Japanese wrestlers. Using this method 5 women were successfully treated between January 2010 and October 2012.

### Zusammenfassung

Die postpartale Blutung verursacht durch eine Uterus Atonie bzw. durch ein diffuses Trauma des Vaginalgewebes ist der Hauptgrund der Müttersterblichkeit. Die spezielle Kompression des Vaginalgewebes und des Uterus durch festes Ausstopfen der Scheide mithilfe von Bauchtüchern wird als neuer Ansatz zur der Behandlung postpartaler Blutungen beschrieben. Hierzu wird eine Binde in Form eines Gürtels straff oberhalb des Uterus angebracht. Um einen ausreichenden Gegendruck zu erreichen, wird eine zweite Binde vom hinteren Teil zum vorderen Teil des Gürtels so fest plaziert, dass die Bauchtücher in der Scheide fest gegen den Uterus gedrückt werden. Die Bezeichnung „Sumo-Kompression“ wurde als Erinnerung an die Hosen der Sumoringer gewählt. Zwischen Januar 2010 und Oktober 2012 wurden 5 Frauen mit dieser Methode erfolgreich behandelt.

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### Introduction

Every minute a woman dies during labour or delivery. The main cause of maternal mortality is post partum haemorrhage (PPH) (24%) [1]. 99% of mortality occurs in developing nations and is due to the lack of proper resources [2]. After vaginal delivery first line of therapy for hemorrhage is bimanual compression of the uterus until stabilization is achieved. Often this cannot be maintained by an individual for more than 150s and a paired team may not last for more than 5 min [3]. Uterine balloon tamponade has been found to be effective even in resource-poor settings but its implementation and use in these settings is difficult [4]. Furthermore, intrauterine tamponade may stop acute haemorrhage but may interfere with physiological contraction of the myometrium. In addition, uterine atony may develop

in combination with extensive lacerations of the vagina and surgical repair may be very difficult. Suturing may result in extension of the lacerations with an increase in bleeding. After unsuccessful attempts to control PPH by myometrium contractile agents, fundal massage, ice packs and energy-sapping compression of the uterus 30 years ago we first used a combination of intrauterine and vaginal tamponade resulting in insufficient haemostasis probably due to insufficient tightness of compression. To increase compression we adopted the bandage described by Stöckel [5] packing the vagina with laparotomy pads. Later we developed the “sumo-compression”. The term “Sumo-compression” was chosen, because most people are familiar with the Japanese wrestlers and reminds them of the concept in extreme situations.

## Method

We have applied “sumo-compression” after vaginal delivery in patients with severe post partum haemorrhage, where the use of contractile drugs and surgical intervention had been unsuccessful. After curettage of the uterus and revision of the cervix or failure to stop bleeding by suturing traumatized vaginal tissue under general anaesthesia and continuous infusion of contractile drugs the uterus is compressed from below by tight packing of the vagina with 3–5 laparotomy pads (● Fig. 1). A bandage is fixed like a very tight belt preventing the uterus from rising and a roll of pads compresses the uterus from the fundus (● Fig. 2). Counterpressure is achieved by a second bandage from the anterior to the posterior part of the belt pressing the pads inside the vagina firmly against the uterus (● Fig. 2). The hip areas are padded to reduce skin trauma.

## Results

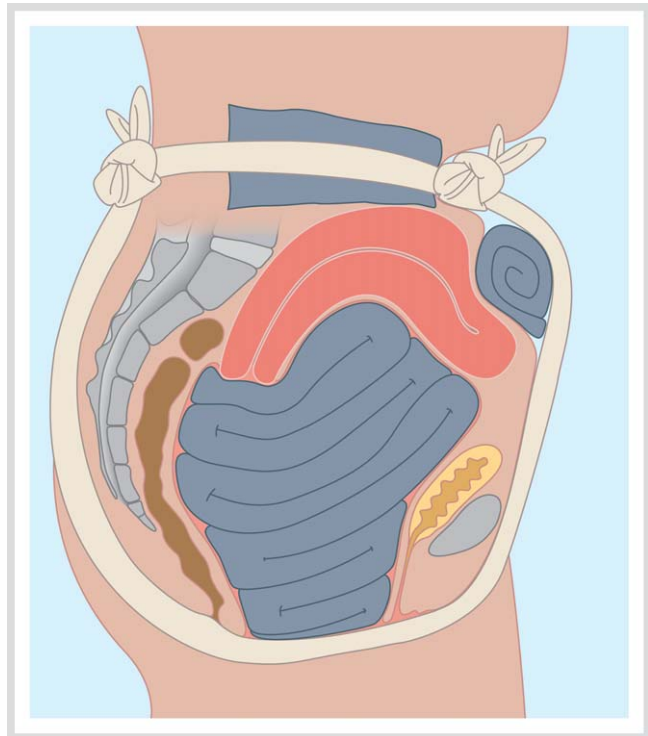
Since 1997 sumo compression has been used sporadically in the department of obstetrics and gynaecology, Klinikum Fulda, Germany. Between December 2010 and October 2012 five patients (24–34 years) gravida 1, parity 0 were treated. The gestational age at delivery was 34+1 to 41+4 weeks of pregnancy. There were no signs of venous stasis in the legs. Pedal pulses remained palpable indicating that the aorta is not significantly altered by the sumo-compression. In all patients up to 9 (3–9) units of blood and 8 (0–8) units of fresh frozen plasma had been transfused during the procedure and on the intensive care unit. Once fibrinogen resp. tranexamic acid was given the patients were kept in the intensive care unit for 1–2 days and general anaesthesia lasted 4–20h. “Sumo-compression” was removed before anaesthesia was stopped. Hospital stay was between 4–12 days. One woman complained of a little hip pain lasting some days. Another woman showed a skin abrasion in the same area.

## Discussion

The “sumo-compression” technique is safe and easy to administer. Laparotomy pads and elastic bandages are available even in resource-poor settings. Uterovaginal packing is known since a long time (see method of Bumm cited in [5]) and has been successfully used in a great number of patients [6]. Differently from conventional balloon tamponade and intrauterine packing “sumo-compression” does not interfere with normal contraction of the uterus during recovery and may avoid further complications like secondary PPH or infection.

Profiting by the same general anaesthesia “Sumo-compression” should be utilized after the use of contractile drugs, curettage and surgical intervention as described above had been unsuccessful.

In extreme obstetrical situations such as PPH the name of an effective method should be easy to remember and at the same time be illustrative such as “sumo-compression” or “quilting sutures”. To stop PPH after caesarean delivery we use “quilting sutures”, 6–10 U-stitches from the fundus to the cervix. They are easy to perform and effective in stopping haemorrhage by compressing the uterus [7]. In case of PPH after C-section “quilting sutures” in a second laparotomy may be more effective than



**Fig. 1** Schematic drawing of “sumo-compression” in PPH (carried out by Wolfgang Herzig [www.des-illu.de](http://www.des-illu.de)).



**Fig. 2** Photograph of the applied “sumo-compression” in PPH.

“sumo-compression”. With both methods in our department post partum hysterectomy could nearly always be avoided. The ease of the method encourages the obstetrician to act without losing valuable time by hesitating to perform one of the more complicated procedures. Hopefully the “sumo-compression” will help to reduce maternal morbidity and mortality particularly in resource-poor settings.

## Conclusion



“Sumo-compression” should be performed in case of PPH from atony or extensive trauma of vaginal tissue if the use of contractile drugs, curettage and surgical intervention had been unsuccessful. It is important not to delay in performing “sumo-compression” in order to alter the clotting system as less as possible.

## Details of Ethics Approval



For this kind of study there was no need of an ethics approval.

## Funding



No funding.

## Disclosure of Interests



We see nothing to disclose.

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