Short Communication

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An evidence-based cesarean section suggested for universal use

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Abstract

Objectives: This article suggests a unified way to perform Cesarean sections. Even in the same departments, different modifications are in use. Therefore, one cannot rely on the early or late outcome of the procedure as long as all the surgical steps are not standardized.

Methods: The Misgav Ladach (Stark) Cesarean Section presented here is an evidence-based operation. Its basic principles are a modified Joel-Cohen abdominal incision, one-layer continuous suturing of the uterus using a big needle, leaving peritoneum open, closing fascia continuously and a few Donati skin sutures.

Results: This method has been subjected to scores of comparative studies with other methods in use, proving its advantages over them concerning duration, blood loss, febrile morbidity, need for analgesics, and costs.

Conclusions: It is suggested that this method should be used as the standardized universal method which will enable comparison between obstetricians and institutions, and offer the parturient the best possible outcome.

Keywords: cesarean section; Misgav Ladach; Stark cesarean.

Most of the abdominal operations already have endoscopic solutions, except cesarean section. It is expected therefore that this operation should be done in the optimal way. However, the way it is performed varies not just among hospitals, but even among obstetricians working in the same department. This is due to sticking to local traditions and personal preferences, as well as the approval of the authorities to promote the autonomy of the obstetrician in choosing their operative methods [1].

Any operation should be based on evidence rather than on tradition, and operative methods should be standardized, which is the condition for valuable comparative studies [2, 3]. The lack of studies using standardized operative steps, such as a way to suture the uterus or if to leave the peritoneum open, explains the different published outcomes.

The well-described Misgav Ladach cesarean section was developed in Jerusalem in the 90s of the last century in a process of three years [4]. This method was presented at the XIV World Congress of FIGO in Montreal in 1994 [5]. It is an evidence-based method and is in routine use in several countries. This method was suggested as an operation for universal use in different countries like China [6] or all over Africa [7].

There are over hundred peer-reviewed studies comparing this operation as originally described or with minor modifications to the traditional methods, using the Pfannenstiel incision, suturing the uterus with two layers and closing both peritoneal layers.

Without exception, all these studies proved the advantages of this method which is described here, and therefore it is suggested that this is the method that should be used universally.

The basic principles of the method are as follows:

The parturient is operated with closed legs to avoid tension on the fascia when it is sutured. The Trendelenburg position allows easier access to the lower segment of the uterus.

Right-handed surgeons stand on the right side of the table. The right hand is more sensitive than the left one, reducing the extension of the uterine wall opening when delivering the baby. When suturing the uterus, the tip of the needle goes away from the bladder, with less risk of injuring it.

Longitudinal abdominal incisions for cesareans were used until Pfannenstiel described his transverse one in 1900 [8]. The benefits of the transverse incision are not just esthetic, but also a reduced rate of wound dehiscence [9].

In 1972, Sidney Joel-Cohen presented an alternative transverse incision for abdominal hysterectomy based on time and motion studies [10]. This incision where the fascia is cut open above the arcuate line of the rectus sheath was

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adopted with some modifications into the Misgav Ladach cesarean section. Using the modified Joel-Cohen incision resulted in significantly lower febrile morbidity when compared to the Pfannenstiel incision [11].

The first incision is very superficial, cutting only the cutis 3 cm below a line connecting both anterior superior iliac spines. In the middle of the skin cut, the deepening of the incision is done until the fascia is reached, and a 4–5 mm transverse incision is done. Straight scissors with round tips are used to open the fascia. One blade is placed above the fascia in the created hole and the other below. The scissors are pushed first to the left and then to the right to cut the fascia open. This is done below the subcutaneous tissue and the blood vessels.

The surgeon and assistant insert their index and middle fingers between the straight muscles and pull them laterally, together with the fat tissue and the blood vessels. Blood vessels have lateral sway, and therefore usually no bleeding occurs.

The peritoneum is opened by repeated stretching above the bladder until a small opening is done [12], and then opened transversely by stretching. A hand speculum is inserted.

In the upper part of the uterus, significantly higher percentage of muscle tissue is present compared to its lower part [13]. Therefore, it is advisable to open the uterus as low as possible, where more fibrous tissue and fewer muscle fibers exist. The plica is opened transversely, and the lower segment of the uterus is exposed and penetrated with the index finger, and the opening is stretched laterally. The surgeon inserts his right hand into the uterus encircling the presenting part and lifting it, while the assistant is pushing the fundus down if necessary.

The umbilical cord is clamped, a blood sample is taken and the baby is given to the midwife.

Should spontaneous detachment of the placenta not happen, it can be removed manually, although it is associated with more bleeding [14]. The uterus is exteriorized to reduce the bleeding by manual contraction.

The central part of the lower layer is held with forceps. The uterus is sutured in one layer with a big needle of >80 mm. The sutures should be locked to achieve immediate hemostasis, and as the uterus starts involution immediately the blood supply is not restricted. The less suture material used, the less reaction to the foreign body. One layer suture is preferred, where less suture material is left behind. Single- and double-layer closure is associated with a similar incidence of scar defects, as well as a rupture in a subsequent pregnancy [15].

As abdominal towels are not used in order to avoid adhesions, clots in the pouch of Douglas or in front of the

bladder are removed manually. Liquid blood will be absorbed from the intraperitoneal space within a few hours.

Both peritoneal layers are left open, therefore fewer adhesions will form [16, 17]. Only the fascia and skin are sutured, the fascia continuously (with its two layers in the lateral aspects, as the abdominal incision was done above the arcuate line), and the skin with only a few Donati sutures using a big needle to include the subcutaneous tissue. This will enable drainage.

The advantages of this operation are not just concerning shorter operation time and early outcomes such as reduced blood loss and less need for analgesics [18] but also concerning the late outcomes, the presence of neuropathic and chronic pain when compared to the traditional methods [19].

It is therefore suggested that this method should be used as the standardized universal method in order to offer the parturient the best possible outcome.

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