

Transverse Abdominal Plane Block (Tap Block) Echo-guide a Safe Alternative for Cesarean in Parturients with a Precarious Hemodynamic State: About a Case of "Beautiful Escape"

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Abstract

Anesthesia for emergency caesarean section constitutes a real challenge for the anesthetist-resuscitator not only because of the complexity linked to the physiology of the pregnant woman but also because of the delay in fetal extraction, especially since the patient would be in an unstable haemodynamic status (HDM). In our case, it is a 26-year-old patient, housewife, married, with no known medical-surgical history (G3, P2) with two living children (V2), having carried out no prenatal consultation, a Glasgow at 14 /15 on admission associated with an unstable haemodynamic state. She was operated by Caesarean section for hemorrhage in the third trimester of pregnancy lasting more than 24 hours in a pregnancy estimated at term. We performed bilateral ultrasound-guided TAP BLOCK with 0.8 ml/ KgP of 0.25% Levo-Bupivacaine plus local infiltration of the incision site with 10 ml of XYLOCAINE 20 mg/ml ADRENALINE 0.005 mg/ml. Verbal contact was maintained with the patient throughout the surgery and she kept a stable HDM state intraoperatively with a mean arterial pressure (MAP) of 70 mmHg at the end of the procedure. Wall BLOCK techniques are feasible, reliable and beneficial on fragile sites where general anesthesia and neuro-axial methods (epidural or intrathecal) are contraindicated or even dangerous.

Keywords: Anesthesia; World Health Organization (WHO); Mean Arterial Pressure (MAP)

Introduction

Caesarean section is a surgical procedure aimed at extracting a child from the maternal uterus by incision of the abdominal and uterine wall. Caesarean section has been practiced for millennia but the invention of the uterine suture is dated 1882 and is attributed to Max Sänger [1]. In Mali, the caesarean section rate is estimated at 08% against a target of 15% for the World Health Organization (WHO) [2]. Anesthesia for emergency caesarean section constitutes a real challenge for the anesthetist-resuscitator

not only by the complexity linked to the physiology of the pregnant woman but also by the delay in fetal extraction, especially if the patient is in an unstable hemodynamic state (HDM).

The TAP-BLOCK performed under ultrasound guidance requires a flat high-frequency probe of 7.5 to 12 Mhz (a low-frequency curved abdominal probe can be used, but the lower resolution and the curvature of the images increase the difficulty of the gesture); It is recommended to use an 80, 100 or 150 mm needle (needles

used for performing nerve BLOCK, Tuohy needle or specific needle for TAP currently on the market). The choice is determined after identification and measurement of the skin-TAP distance. The aseptic conditions of use being respected, the high frequency probe is placed at the level of the mid-axillary line between the costal awning and the iliac crest, perpendicular to the skin and in the axial plane. The image obtained shows from the surface to the depth of the skin, the hypoechoic subcutaneous fat, the external oblique, internal oblique and transverse muscles appear heterogeneous and a slight change in the angulation of the probe seems to cause them to slip one on the other (ultrasound translation of the meaning differ from their muscle fibers), finally under the transverse appears the hyperechoic parietal peritoneum and the viscera mobile with breathing [3]. The muscles are separated by their fascias which appear hyperechoic. The joining of the deep fascia of the internal oblique and the superficial fascia of the transverse produces a hyperechoic plane, which is none other than the TAP; it is even possible to sometimes observe round hypo-echoic elements which are the vasculo-nervous elements sought. The needle is then inserted "in plane" and its progression is followed through the various fascia and muscles until his arrival at the TAP. A test dose of a few milliliters of physiological saline makes it possible to objectify the correct position of the needle. Ideally, the injectate should appear between the internal oblique and transverse muscles, signaling the distention of the TAP [4,5]. Most often, the product is localized between the fascia and the transverse muscle [6]. Any intramuscular injection must be rejected (random efficacy and potential myotoxicity). Once the space has been objectified, the entire volume of AL is injected in a fractional manner and after aspiration, which appears as a convex lens pushing back the transverse in depth and over several centimeters in width.

Our objective was to demonstrate the feasibility of a cesarean section under ultrasound-guided wall BLOCK (TAP-BLOCK) in particular in patients with hemodynamic instability without the complications of general anesthesia and spinal anesthesia related to this type of terrain.

Patients and Observations

We report the case of a 26-year-old housewife patient, married, with no known medical-surgical history, she is third gesture (G3), parity 2 (P2) with two living children (V2).The patient never had

a prenatal consultation (CPN), an unmonitored pregnancy, any prenatal check-up, or any prophylaxis done during the pregnancy. The patient was referred to the gynecology and obstetrics department for third trimester hemorrhage in a pregnancy estimated to be at term. At the pre-anaesthetic visit, the examination found a Glasgow at 14/15 (eye opening=4; verbal response=4; motor response=6); non-invasive blood pressure (NIBP) at 70/50 mmHg; a heart rate (HR) of 138; a body temperature of 36.5°C and a peripheral oxygen saturation (SPO₂) of 96% without oxygen supply (in ambient air).

The preoperative examination allowed the patient to be rated ASA (American Society of Anesthesiologists) III. Paraclinical examination reveals: a hemoglobin (HB) level of 02 g/dl; serum creatinine at 2.30 g/dl, proteinuria at 30 mg/dl, random blood sugar at 0.92 g/l, the patient is group O rhesus negative (O-), faced with the persistence of bleeding and the absence fetal heart sounds (BDCF) and the unavailability of an O- blood bag in the laboratory, the decision to operate was taken after consultation between the gynecologist and anesthetist-resuscitator.

Results

After taking a femoral central venous line and starting a norepinephrine-type catecholamine using an auto-push syringe (SAP) with a dilution of 04 micrograms/ml, the patient was admitted to the operating room with a NIBP of 120/70 mmhg, HR at 110 beats/minute, SPO₂ at 100% with oxygen supplied by mask, a Glasgow evaluated at 15/15.

The technique was explained to the patient to get her adherence, after the installation of the patient we proceeded to perform a bilateral ultrasound-guided TAP block; a SonoSite FUJIFILM M-TURBO ultrasound device fitted with a linear HFL38 probe with a frequency of 13-6MHz to locate the puncture space, an "in plane" technique was used throughout the procedure to monitor progress of the needle and its correct location, a Stimuplex Ultra 360, 20G type neurostimulation needle with a length of 0.9 x 100 mm was used for this purpose. Half of an injectate of 0.8 ml/ KgP of Levo-Bupivacaine at 0.25% was injected on each side with the same technique, the good diffusion of the injectate was checked by ultrasound in real time thereafter. local infiltration of the incision site with 10 ml of XYLOCAINE 20 mg/ml ADRENALINE 0.005 mg/ml was performed by the surgeon before incision. (Figure 1,2, and

3) and the administration of one gram of tranexamic acid (Exacyl)) was performed directly intravenously. Pfannenstiel -type incision plus coeliotomy and hysterotomy allowed the extraction by the podal pole of a macerated stillborn male weighing 2550 grams for a height of 50 centimeters (cm), a cranial circumference of 33cm and a thoracic circumference of 32 cm. The surgery lasted 45 min, the blood loss was estimated at 90 ml, no incident or accident was detected during the intervention. Verbal contact was maintained with the patient throughout the surgery and she maintained a stable HDM state intraoperatively with a mean arterial pressure (MAP) of 70 mmHg at the end of the procedure. Table 1 summarizes respiratory and circulatory variations during surgery.

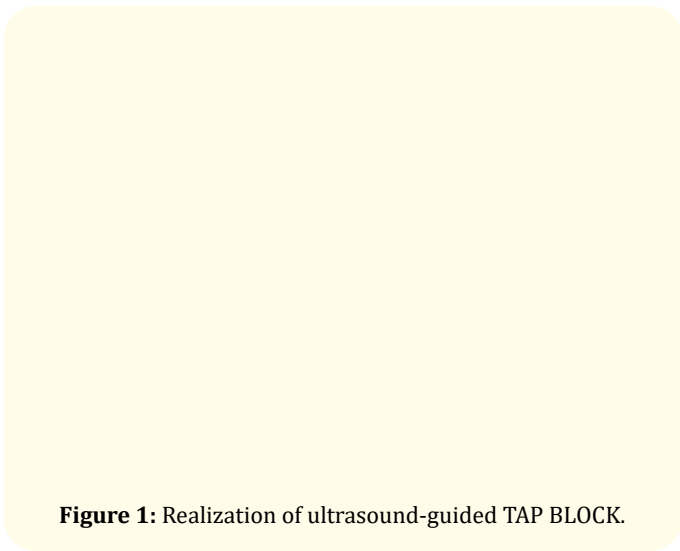


Figure 1: Realization of ultrasound-guided TAP BLOCK.

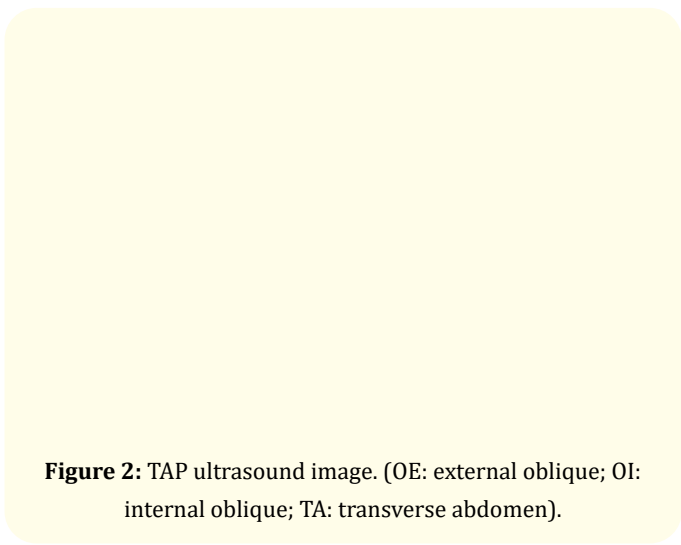


Figure 2: TAP ultrasound image. (OE: external oblique; OI: internal oblique; TA: transverse abdomen).

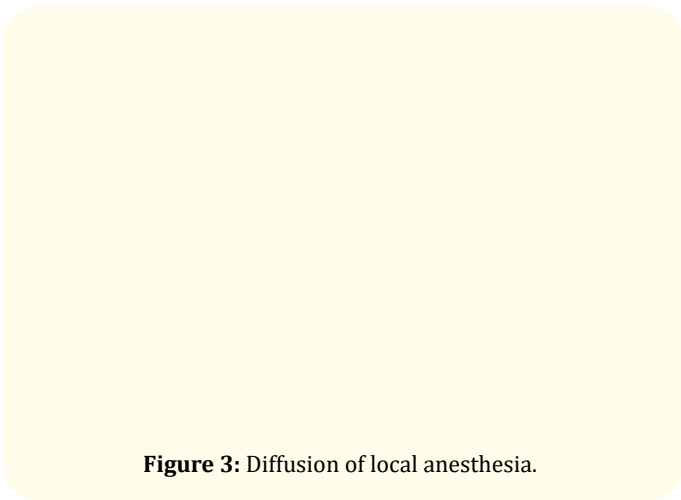


Figure 3: Diffusion of local anesthesia.

Moments (min) Parameters	00	05	10	15	20	25	30	35	40	45
heart rate	110	105	109	111	100	98	80	91	90	95
P.N.I. (mmhg)	120/70	110/80	123/72	126/80	130/78	121/70	131/74	123/71	132/80	129/80
F.R.	19	18	15	18	17	16	17	16	14	15
SPO ₂ (%)	100	99	99	100	100	98	97	100	100	99
HR = Heart Rate, NIBP = Noninvasive Arterial Pressure, HR = Respiratory Rate, SPO ₂ = Peripheral Oxygen Saturation										

Table 1: Respiratory and Circulatory Variations During Surgery.

Discussions

Our case reports the realization of a cesarean section only under block of the wall (TAP BLOCK) associated with a local infiltration of Xylocaine of the incision site this technique was chosen by our team taking into account the fragility of the patient and sparing us by on the same occasion the use of general anesthesia and spinal anesthesia on this terrain of hemodynamic instability which may contraindicate one or the other technique [7] while optimizing postoperative pain management as well as possible [8,9] the same practice was carried out by YUN Wang, *et al.* [10] with the difference that it was also practiced successfully in a patient for amyotrophic lateral sclerosis in their case and the patient benefited from a contribution of the concentrations sub - anesthetics anesthesia volatile To summer expected as well as JC Coffman, *et al.* [11] which, in addition to the block plane and ilioinguinal/iliohypogastric ultrasound-guided bilateral transversus abdominis, combined intravenous sedation to perform cesarean section in a patient with type II spinal muscular atrophy. In our case, no complication linked to the anesthesia technique was observed. Furthermore, a puncture resulting in a grelic hematoma, femoral paresis and hepatic hematoma have been reported by Paul Zetlaoui [12]. Hemodynamic stability was maintained throughout the surgery, which is superimposable on the same result obtained by YUN Wang, *et al.* [10]. We did not record any complications, contrary to Hang and Al [13] who reported a case of serious infection of the abdominal wall after a TAP subcostal block. In short, the ultrasound-guided TAP block with local infiltration of the incision site with xylocaine allows the performance of a caesarean under optimal surgical conditions, exempt from the undesirable effects of general anesthesia and neuro-axial methods (epidural or intrathecal).

Conclusion

TAP blocks are easy to perform, reliable and effective and have an excellent safety profile. Our case demonstrates not only its feasibility but also its lower hemodynamic impact, especially in patients with an unstable hemodynamic state requiring a lot of precaution.

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