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Acute Postpartum Urine Retention: Case Report and Review of the Literature

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Abstract

Introduction: Acute postpartum urine retention is a condition whose failure to recognize it can lead to delays in diagnosis, which can worsen the prognosis, and to inappropriate management. It occurs in 0.7% to 0.9% of vaginal deliveries. Its aetiology is multifactorial. There are many risk factors. Treatment is based on intermittent evacuation catheterization. Today, there is no consensus on the management of this condition, which has received little attention in African literature. Hence the interest of this article. **Clinical Case:** This is a 46 years old female, G5P5 005, with no prior history of involvement, who, after a dystocic vaginal delivery (longer than 12 hours with long foetal expulsion) and at term of a female newborn weighing 3475 g, developed hypogastric pain and spontaneous failure to urinate within 24 hours of delivery. The physical examination revealed abdominal tenderness and dullness with a strong desire to urinate and a normal neurological examination. The diagnosis was postpartum urinary retention. A bladder catheter inserted through the urethra drained 1100 ml of clear urine. Management consisted of physical measures and the prescription of an alpha blocker (Alfuzosin 4 mg). Two days later, the patient urinated normally. **Conclusion:** Acute postpartum retention in routine practice is rare but may be underestimated. Measures need to be taken to diagnose and manage this complication and also to determine the epidemiology of this postpartum complication.

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Keywords

Postpartum Urinary Retention, Dystocic Vaginal Delivery, Transurethral Urinary Catheter

1. Introduction

Postpartum urinary retention (PUR) is a little-known phenomenon that can occur in the immediate postpartum period [1] and is a worrying complication [2]. There is no consensus on the precise definition and diagnostic criteria for this condition [1] [2]. Two types of PUR have been identified in various studies: overt PUR and covert PUR [3]-[6]. Some studies define overt PUR as the absence of spontaneous micturition within 6 hours of vaginal delivery [3]-[5] [7] [8] or the need for repeat catheterisation 6 hours after catheter removal following caesarean section [3] [4] [9]. Others refer to an inability to have spontaneous micturition in the 12 hours following vaginal delivery [10]. It is said to persist beyond 96 hours [11]. Secreted PUR is defined as an increase in residual post-voiding urine volume (PVR) after spontaneous voiding [4] [5]. However, the appropriate threshold for abnormal PVR is controversial, with new evidence suggesting that 500 ml rather than the traditional 150 ml may be a more significant indicator of impaired voiding [4] [5]. Some authors define PUR as a symptom requiring at least one catheterisation within the first 24 hours postpartum [12]. These discrepancies in definition and inconsistencies in diagnostic criteria explain the variability in the incidence of PUR, ranging from 0.05% to 45% [13] [14]. The pathogenesis of PUR is unclear [15] [16]. In the majority of cases, postpartum bladder retention resolves within 24 hours and has no subsequent consequences [11]. On the other hand, in persistent PVR, we find bladder slamming, in other words, bladder distension leading to histological lesions of the muscle fibres and even the impossibility of detrusor contraction [17]. In fact, PUR involves a complex interaction of anatomical, neurological and hormonal factors that can alter detrusor contractility and urinary sensation in the postpartum period. The resulting bladder overdistension and large volumes of PVR further inhibit spontaneous micturition through maladaptive neural reflexes. If left unresolved, PUR can lead to serious complications, including urinary tract infection, bladder damage and renal failure [2]. Frequently proposed risk factors include epidural anesthesia, operative vaginal delivery, prolonged labor duration, episiotomy, newborn macrosomia, nulliparity, obstetric anal sphincter injury and operative vaginal delivery [13]. This last was the only clinical factor with a consistently strong association with PUR [13]. Prevention of PUR requires avoiding bladder over distention during labor. Today, there is no consensus on the management of this condition, and little is written about it in the literature. However, bladder catheterisation remains the treatment of choice [8]. In Africa, very little is known about this problem (there are virtually no publications on the subject). Hence the interest in presenting this case.

2. Clinical Case

The patient was 46 years old, single, housewife, G5P5 005, with no contributory history, who 24 hours after a dystocic vaginal delivery (more than 12 hours with long foetal expulsion) and at term of a female newborn weighing 3475 g developed hypogastric pain and spontaneous failure to urinate within 24 hours of delivery. Physical examination revealed a conscious and oriented patient with a stable hemodynamics status. Examination of the abdomen revealed abdominal tenderness and dullness, with a strong desire to urinate. On vaginal examination, the vulva was clean, the anterior cervix was soft and open to 2 cm, and the fingernail brought back non-fetid sero-hematic lochia. The urological and general neurological examination was normal. Given these clinical features, we suspected acute postpartum urine retention, the aetiology of which could be a vesico-sphincter disorder or oedema of the bladder neck (Bladder scintigraphy and urodynamic examinations, with the exception of uroflowmetry, are not available in our context). A bladder catheter CH 18 was inserted as an emergency measure, yielding 1100 ml of clear urine. Failure of a test to remove the urinary catheter led to the insertion of an indwelling urinary catheter. We ordered a urinary tract ultrasound and a pelvic ultrasound, both of which were normal. Biologically, the cytobacteriological examination of the urine was sterile, and the urea and creatinine levels were 3 mmol/l and 60 µmol/l respectively. Management consisted of physical measures including a warm bath, hyperhydration and the prescription of an alpha blocker (Alfuzosin 4 mg) in the form of one tablet in the evening at bedtime, with monitoring of parameters and diuresis. Two days later, the urinary catheter removal test was satisfactory (felt the need to urinate and completely emptied her bladder with a PVR of less than 10 ml on ultrasound). No bladder retraining was performed. The patient was seen on an outpatient basis two weeks later, with no problems.

3. Discussion

Acute postpartum urine retention is an uncommon condition [18]. There is little African literature on the subject. Its aetiology is multi-factorial. There are factors related to the patient's background (age, urological history, uterine fibroids, congenital uterine anomalies, pelvic adhesions, retroverted uterus, pre-existing micturition difficulties) and those related to childbirth (primiparity, dystocic labour, longer duration of the second stage of labour, instrumental delivery, etc.), perineal injury, vulvar oedema or perineal haematoma, episiotomy, epidural analgesia, absence of spontaneous micturition before leaving the delivery room, birth weight > 3.5 kg and second degree perineal laceration or more) all appear to be predisposing factors, as described in the literature [4] [5] [13] [19]-[20].

Bouhours [19] mentions age as a risk factor and refers to Pertek's explanation [21] that the higher rate of complete bladder retention in patients aged 21 to 40 compared with those aged 41 to 64 could be explained by a higher sympathetic tone, but our patient was 46 years old. Therefore, age cannot be the only risk factor

that can explain this pathology.

The risk factors identified in this case were prolongation of both the first and second stages of labour [9]. Yip found that the duration of the first and second stages of labour was significantly associated with residual postpartum bladder volume after voiding. For us, dystocic delivery was the main risk factor for postpartum urinary retention in this patient.

Clinically, our patient presents practically the same clinical characteristics and the same childbirth difficulties as the patient presented by Badiaga [18]. This may lead us to believe that the black sub-Saharan African woman who develops PUR is a woman over 35 years of age, multiparous, or even a grand multiparous woman, who presents with a dystocic delivery of a foetus weighing more than 3000 g.

We made our diagnosis clinically on the basis of the patient's complaints and the physical examination. It has to be said that the clinical context in our conditions is very important, especially as patients often have difficulty paying for urgent morphological examinations, especially for bladder scans, and many of these women are financially exhausted after giving birth, despite the efforts made by the government. Furthermore, some tests are not available in our context, such as scintigraaphy and urodynamic tests with the exception of uroflowmetry which is not yet available in public hospitals. As a result, it will be difficult to make a diagnosis using morphology, as mentioned by Lukasse [22] and evenurodynamics tests in our context. Badiaga [18], in his clinical case study, makes no mention of morphological examination, showing the similar difficulties presented by women from sub-Saharan Africa. We suggest that gynaecologists carry out close monitoring, with possible reconsideration if there is an absence of micturition within 24 hours of delivery if the patient is lying down and within 12 hours if the patient is standing or sitting, the patient has been well hydrated and there is pain, urgency associated with an inability to urinate and suprapubic dullness [19]. The diagnosis of urinary retention remains clinical.

We have suggested that the probable aetiology is a bladder-sphincter disorder or oedema of the bladder neck. Bouhours mentioned three consequences of obstetrical labour: stretch neuropathy, pain and oedema or haematoma [19]. According to Perek, activation of sympathetic and somatic pathways in the vicinity of a wound is responsible for pain [21]. At the perineal level, there may be spasm of the smooth urethral sphincter due to sympathetic stimulation of alpha1 receptors on the bladder neck, or even reflex contracture of the striated urethral sphincter [21]. Oedema of the bladder neck may be due to prolonged compression by foetal presentation [19]. Neurological damage can cause long-term sequelae, with decompensation of urinary continence and pelvic statics [23]. In the context of multiparity, we agree with Badiaga *et al.* in Mali [18] who mention very high multiparity as a favourable factor, with its corollary of reduced uterine muscle tone and prolonged labour due to dynamic dystocia. We can therefore assume that with more than four deliveries, there is also a risk of developing PUR.

An indwelling urinary catheter was inserted as an emergency measure. Humburg

states that bladder catheterisation remains the treatment of choice [8]. The literature recommends a Foley ch 12 or 14 catheter, but these are difficult to access in our context.

Placement of the urinary catheter enabled us to evacuate 1100 ml of clear urine 24 hours after delivery. This shows that the patient had probably urinated before giving birth. According to the study by Nel JT *et al.* during the third trimester of pregnancy, when lying supine, a pregnant woman perceives the first need to urinate at between 250 and 400 ml, and the urgency of urination at between 1000 and 1200 ml. However, when sitting, the pressure exerted by the pregnant uterus alters bladder capacity [1]. The first need is then felt at 155 ml and the emergency at 370 ml, corresponding to near-normal values for bladder filling [24]. However, with childbirth, there have been physiological changes. We can estimate our patient's hourly diuresis at 0.8 ml/min, which shows that our patient had a normal hourly diuresis. After 6 hours, our patient should have had 288 ml of urine in her bladder, at 12 hours, 576 ml of urine in her bladder and after 24 hours, when we emptied her bladder, she had 1100 ml of urine in her bladder. This leads us to think that, in our context, it would be more valid to evoke a PUR after 12 hours without urinating in terms of manifest PUR. So, diuresis is not affected by this pathology before the treatment, but it can be affected afterwards, particulary with post-obstructive diuresis.

We did not find any predisposing factors or urinary tract infections, although the risk is known [18] [19].

We used an alpha blocker as suggested in the literature by certain authors [16] [18] [19]. These authors had suggested adjunctive treatment with an alpha blocker [16]; alpha blockers reduce resistance in the cervicourethral region by acting on the smooth muscle fibres in this area [19].

The long-term consequences are likely to be bladder strain and irreversible detrusor damage, caused by bladder overdistension secondary to delayed diagnosis or treatment [15]. These sequelae cannot be seen in our case, as a catheter was always inserted. Delayed management seems to be a determining factor in the persistence of urinary disorders [15] [17], so it is essential to have a clear protocol. We would also stress the importance of informing patients of the signs of urinary dysfunction: weak stream, delayed stream, sensation of incomplete emptying, particularly in patients with UAE discovered early in the postpartum period, in order to avoid any delay in management [8] [25].

4. Conclusion

Acute postpartum retention is rare in everyday practice. If diagnosed in time, it will have no consequences. Delayed management can lead to persistent urinary retention with possible long-term urinary sequelae. Treatment is based on intermittent evacuation catheterisation and alpha blockers. We suggest monitoring micturition and diuresis after childbirth and, once the diagnosis has been made, inserting an indwelling catheter, an alpha blocker and possibly an anti-inflammatory/

anti-oedematous agent, followed by a test to remove the catheter after two days. However, a study is needed to assess the incidence of this postpartum complication in our context.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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