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Straddle Injury in Pregnancy with Asymptomatic Uterine Laceration: Delivery of a Life Baby at Term

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Abstract

Background: *Accidental trauma from falls can occur in pregnancy. Apart from road traffic accident, trauma in pregnancy is common due to hormonal influence that causes laxity of joints, ligaments and connective tissues. Hormonal changes also influence the shift of center of gravity due to hormonal response in the middle ear. Straddle injury involving a concrete or hard surface can be life threatening in pregnancy for both mother and fetus. Prompt recognition, adequate resuscitation and availability of emergency obstetrics care are crucial to fetal and maternal survival.*

Report: *A case of an unbooked 31-year-old G4P3+0 petty trader with three living children who was rushed to the emergency unit of the hospital at a gestational age of 35 weeks and 6 days on account of vaginal bleeding two hours prior to presentation following straddle injury from fall astride on a concrete surface with oedematous vulva, multiple perineal lacerations and affectation of external urethral meatus and silent uterine laceration. She had perineal repair within 30 minutes of presentation. She later had urgent CS on account of poor biophysical profile at 37 weeks with incidental finding of uterine laceration with good fetal and maternal outcomes.*

Keywords: Straddle Injury, Trauma and Pregnancy

Introduction

Trauma in pregnancy is common due to the physiological and anatomical changes in pregnancy predisposing them to fall [1-4]. Apart from road traffic accident RTA, straddle injury even though less reported is common [1, 2]. Other causes of trauma in pregnancy include; suicide and homoicide [1, 2, 5]. Pregnant women are at increased risk of fall due to the hormonal effect or relaxin on joints, ligaments and connective tissues [1, 2, 5]. Shifting of center of gravity as a result of hormonal effect on the middle ear. Injury in case of trauma in pregnancy can occur at any other part of the body and it is managed as such. However, when there is pelvic trauma, the vulva, urethral, vagina and even the pelvis and its content can be traumatized [6-8]. The management requires multidisciplinary approach, resuscitation and timed intervention to prevent possible maternal and perinatal mortality and morbidity that are often associated with it. Access to emergency obstetrics care is life saving for both mother and fetus [8, 9]. Sometimes, there may be need for emergency caesarean section especially if uterine rupture is detected [8, 9].

Case Report

A case of an unbooked 31-year-old G4P3+0 petty trader with three living children who hails from Eziulo in Ishielu Local Government Area of Ebonyi state and resides at same place. She is a Christian of Roman catholic denomination. She presented to the accident and emergency unit of the hospital at a gestational age of 35 weeks and 6 days on account of uncontrollable vaginal bleeding of two hours prior to presentation. She sustained a straddle injury in an attempt to jump across a concrete pavement/gutter in her locality which is about 35km to Alex Ekwueme Federal University Teaching Hospital Abakaliki AEFUTHA, Ebonyi state. Heavy vaginal bleeding started immediately which came out in clots. The bleeding could not be controlled by her wrapper which was heavily soaked. She complained of thist but

no loss of consciousness or bleeding from any other part of the body. She also complained of severe pelvic pain. She was initially resuscitated at a private hospital with intravenous, analgesia and was referred to AEFUTHA for expert care. She has no family or personal history of bleeding disorder. The index pregnancy was registered at a maternity home where she delivered all her babies and her antenatal care has been uneventful. She has completed her doses of tetanus toxoid immunization. Her previous three deliveries were through spontaneous vertex at a maternity home with no complications. She is a secondary school certificate holder, married to a trader in a monogamous family setting. She does not drink alcohol or take tobacco in any form. On examination, she was conscious, anxious and in painful distress, afebrile, pale, mildly dehydrated and there was no pedal oedema. Her pulse rate was 96 beats per minute with blood pressure of 80/50mmhg. Heart sounds were first and second only. Her respiratory rate was 26 cycles per minute and her chest was clinically clear. Abdomen was uniformly enlarged moved with respiration. It was soft with no area of tenderness. Her symphysio-fundal height was 35cm which was compatible with her gestational age. There was singleton fetus in longitudinal lie, cephalic presenting, 5/5 palpable per abdomen. The presenting part was in the right occipito-anterior position. No palpable contraction in 10 minutes. Fetal heart rate FHR was 150 beats per minutes and was regular. Pelvic examination reviewed oedematous vulva, smeared with blood, multiple lacerations extending to external urethral meatus. The vagina was filled with about 300ml of blood clot. There was left lateral wall vaginal laceration measuring about 6cm by 2cm with rough edge extending anteriorly to the clitoris. A diagnosis of perineal injury in pregnancy with severe anemia was made. Her packed cell volume was 11%, platelate count was 160x109/l, RVST, HBsAg, HCV and VDRL were all negative. Blood group was O rhesus D positive and Genotype was AA. Urinalysis was normal. SEUCr and LFT were normal. Four units of blood were cross-matched for her. Oxygen saturation was 90% at room air. She received intranasal oxygen 6 litres per minutes, intravenous ceftriazone 1g daily and intravenous metronidazole 500mg 8hourly. She received intramuscular dexamethasone 12mg 12hourly for 24 hours. A multidisciplinary team involving the Urologist, Anaesthesiologist and Haematologist were involved and they reviewed her. She had examination under anesthesia, vulva exploration, urethral retraction and catheterization with repair of lacerations with vicryl 2-0 and haemostasis is achieved. Estimated blood loss was 2.5 litres. She made adequate urine that was initially bloody. She was continued on parenteral antibiotics, analgesia and maintenance dose of intravenous fluid. She received two units of whole blood intra-operatively and two units immediate post operation. She received 10ml of 10% calcium gluconate over 10 minutes. She was admitted into the intensive care unit ICU. On the first post-operative, she received the fifth and the sixth units of blood and anti-tetanus serum ATS 1500iu statim. Oxygen saturation was 97% at room air. Fetal surveillance was continued and FHR was normal. Diagnosis of distal urethral injury was made by the Urologist and was managed conservatively with urethral catheterization. On day 2 post operation, urine colour was amber and clear and other parameters were normal. Day 4; post transfusion PCV was 25%. Antibiotics were changed to oral cefpodoxime 200mg 12hourly and metronidazole 400mg 8hourly. She was continued on haematinics, vitamin C and analgesia. Poor biophysical profile was noted on ultrasound (6/10 with amniotic fluid index AFI of 4.9cm) which was repeated within 12 hours and it was still 6/10, on which emergency CS at 37 completed weeks was performed. Intra operative findings were; clean peritoneal cavity, a well formed lower uterine segment, alive female neonate that weighed 3kg with APGAR scores of 9 and 10 in the first and fifth minutes respectively, normal tubes and ovaries bilaterally, a posterior uterine haematoma measuring about 4 by 2cm, not actively bleeding and laceration was noted. Estimated blood loss was 500ml. she was continued on antibiotics, intravenous fluid, analgesia and haematinics. Three more units of blood were transfused over three days. Post transfusion PCV was 31% after 48 hours. Recovery from the surgery was uneventful and the perineal infection had resolved on day 5 post CS. She was discharged home with urethral catheter insitu. She was reviewed twice by the Obstetrician and the Urologist. Urethral catheter was removed at the satisfaction of the Urologist. She was counseled on family planning and she choose implant at 6 weeks.

Discussion

Trauma in pregnancy is one of the indirect causes of maternal mortality [1-4]. It is a leading cause of maternal morbidity and mortality especially in developing countries [5]. It also contributes significantly to fetal wastage. The commonest cause of trauma in pregnancy is road traffic accident RTA [2, 3]. Other causes of trauma in pregnancy include; blunt injuries secondary to falls, suicide, homicide and domestic violence [1, 2, 5, 6]. Trauma due to falls including fall astride can occur in pregnancy due to physiological and anatomical changes leading to loss of balance thereby increasing the risk of falls [1, 5]. The vulva is mostly protected by the reflex adduction of the thighs during falls although vulva injury is common in straddle injury [7]. Trauma in the index patient was due to fall astride with multiple perineal injuries. This can be complicated by the rare traumatic injury and even uterine laceration as seen in the index patient [7].

Trauma complicates about 7% of pregnancies [5]. Trauma in pregnancy is generally underreported at it is only serious cases that are brought to the hospital [7]. The risk of death following trauma in pregnancy is higher when compared to the general population [2]. The risk of dying following trauma is 10% in the general population and this is up to 1.6% higher in pregnancy when compared to the general population [1, 2]. There is also increased risk of perinatal mortality following RTA and most of these deaths occur at the immediate post-partum period [3].

The complication seen depends on the extent of injury [9]. When associated with uterine rupture, most times, there is commonly fetal demise and severe maternal complications [3]. It requires multidisciplinary approach involving the nurses, midwives, haematologist, anaesthesiologist, obstetrician, neonatologist and other support staff as the case may require [9, 10]. There can also be traumatic urethral avulsion or even circumferential urethral rupture although very rare [8]. The index patient had urethral crush injury and undetected uterine laceration secondary to trauma.

Immediately patient is rushed to the emergency unit, there is need for immediate assessment, resuscitation and stabilization including blood transfusion [1]. Evaluation therefore goes concurrently with immediate treatment. Samples are collected for grouping and cross-matching as well as other necessary inves-

tigations [10]. Total abdominal CT is the standard for evaluation of trauma in pregnancy since the radiation dose to the fetus is small. However, sometimes, immediate imaging may be necessary including x-ray in addition to ultrasonography since transferring patient for CT may not be safe as patient may not be stable for that [5,10]. CT could not be done for our patient even after stabilization due to financial constraints and patient responded well to initial treatment.

The management of trauma in pregnancy is unique and a little different from general trauma care since two lives are involved and may pose challenge during management [5]. The treatment is individualized according to the patient's need [6, 7]. It may therefore be necessary to deliver the baby as part of resuscitation irrespective of the gestational age especially if there is aortic complications, as venous return improves by relieving the uterus following CS [5]. The physiological and anatomical changes in pregnancy may pose challenge during resuscitation, immediate emptying of the uterus aids resuscitation [1, 3]. When associated with urethral injury, treatment depends on the extent of the injury [8]. It can be managed conservatively with catheter or repaired surgically [8]. The index patient had her urethral injury managed conservatively successfully. Identifying the source of bleeding and rapid haemostasis is the hallmark of good clinical practice. It is therefore necessary to prevent deterioration of haemostasis [3]. There may be need for hysterectomy when there is uterine rupture, which can be total especially when the patient's haemodynamic condition is being compromised especially in traumatic uterine rupture involving great major vessels [3].

Some of the complications associated with trauma in pregnancy include; abruption placenta, uterine rupture, fetal and maternal compromise [3, 9, 11]. Uterine laceration is another form of uterine rupture as seen in the index case [3]. Death can be due to haemorrhage or from direct impact of the trauma to another organ [3]. in majority of cases of uterine rupture, there is usually fetal demise except in cases of incomplete rupture [3]. Urethral injury is another uncommon but distressing complication of trauma in pregnancy and can be quite challenging to manage [11]. It can be in form of straddle injury, penetrating or may even be associated with fracture [9]. The index patient had lower urethral crush injury that was managed conservatively with good outcome. Urethral injury and pelvic fracture can be treated through primary endoscopic realignment or delayed urethroplasty after suprapubic cystostomy [11].

Immediate delivery may be necessary to aid resuscitation and improve cardiac function [7]. Peri-mortem CS can be done to aid resuscitation especially when there is cardiac arrest or when patient is at risk of it and fetus can still be salvaged even after 4 minutes of cessation of maternal heart beat [7, 10]. Perimortem CS is indicated if there is no positive response after 4 minutes of active resuscitation. Delivery however, can be delayed to a later date if there is no immediate threat to life. When there is already uterine rupture, treatment could be repair alone at laparotomy and allow pregnancy with delivery at near term [3]. In delayed delivery, fetal surveillance should be instituted and ultrasound for biophysical profile done every two days as done for the index patient.

Conclusion

The satisfaction of every pregnant woman is to have a healthy baby and she is alive to take care of her baby. However, some of the physiological and anatomical changes can predispose them to increased risk of trauma including falls. Straddle injury in pregnancy can be frightening and life threatening, and therefore requires meticulous multidisciplinary intervention to prevent to prevent associated perinatal and maternal morbidity and mortality [9]. A planned and regimented follow up with the Urologist and Haematologist as well as close monitoring in feto-maternal unit with ultrasound and non-stress test are of utmost importance in case of urethral injury, massive blood transfusion and undetected uterine injury as in our patient.

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