Challenges Of Haematuria In Pregnancy In The Tropics

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Abstract

Haematuria is considered an ominous sign until proven otherwise. The causes of hematuria in the general population range from inconsequential causes, to those that are life threatening, requiring early or urgent intervention. Hematuria could either be microscopic, macroscopic or frank. Hematuria in pregnancy (HIP) presents a desperate situation of apprehension, distress and uncertainty. Investigating the underlying causes of gross HIP poses challenges because of the pregnancy state. It is further compounded in resource poor countries where facilities for investigations are not readily available and affordable; coupled with inadequacy of blood replacement facility and socio-cultural behaviours especially in sub Saharan Africa

The paper intends to highlight the challenges involved in the management of HIP Case report for case reports of patients with HIP are presented highlighting the challenges of managing these patients.

HIP is a challenging situation to the pregnant woman, unborn child, family members and the attending physicians. There is a need for a guideline for the management of patients with HIP.

Key words: Pregnancy, Hematuria, Challenges, Management

Introduction:

Hematuria is considered an ominous sign until proven otherwise. The aetiology of hematuria in the general population, range from inconsequential causes, to those that are life threatening, requiring early or urgent intervention. Hematuria could either be microscopic, macroscopic or frank[1]. Hematuria in pregnancy (HIP) presents a desperate situation of apprehension, distress and uncertainty. The desperation often sets in, in an otherwise healthy woman whose joy of being a mother soon, is being threatened by a clinical condition.

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However, microscopic hematuria which is very common during pregnancy has been recognized to be largely inconsequential and rarely signifies a disorder likely to impact on the pregnancy outcome[2]. Investigating the underlying causes of gross HIP poses a challenge because of the pregnancy state. It is further compounded in resource poor countries where facilities for investigations are not readily available and affordable; coupled with the inadequacy of blood loss replacement facility, especially in sub Saharan Africa[3]. Therefore this report will focus mainly on the challenge of management of frank or gross haematuria in pregnancy in a resource poor setting.

We wish to present this case series of 4 patients seen in our hospital with haematuria at different trimesters.

Case presentations

Case 1: AO, 24 year old house wife who was a G3P2+0 (2alive) who presented at about 23 weeks of pregnancy with right flank pain and total hematuria. There was associated right flank pain which was colicky and radiated to the suprapubic region. The haematuria was associated with the passing of blood clot. There was no previous episode of haematuria. There was neither vomiting nor change in bowel habits. There was no bleeding from any other parts of the body. The patient neither smoked tobacco nor drank alcohol. Her hemoglobin genotype was AS and she had no history of trauma to the abdomen. At presentation, she was an asthenic young woman; who was in distress and was apprehensive. She was pale, febrile (37.5^{oc}) and was not jaundiced. There were no features of chronic liver disease.

The previous 2 pregnancies were not associated with haematuria and they both ended in uncomplicated spontaneous deliveries. Her vital signs on admission were: Pulse 92/minutes; BP 100/60mmHg. The abdomen was mildly tender in the right flank and suprapubic region and the uterine size corresponded to 24 weeks gestation with palpable contractions. Vaginal examination revealed a closed os of the cervix and the examination finger was stained with mucus. The digital rectal examination was unremarkable. The packed cell volume (PCV) was 20%. The abdomino-pelvic ultrasound showed a life fetus. A diagnosis of haematuria in pregnancy with threatened abortion was made. She was transfused with

3 units of whole blood and the PCV rose to 30 %. Cystoscopy was carried out and no bladder pathology noted. A request for intravenous urography was turned down by the radiology department on account of risk of teratogenicity to the unborn child. The uterine contraction continued unabated despite tocolytics and she eventually expelled the fetus. The patient was discharged few days after the abortion with no more gross haematuria.

Few months afterwards, she was seen in the clinic with her father who came to ask for means of preventing future HIP. The patient reported that her husband had separated from her on account of the fear of possible recurring haematuria in future pregnancies.

Case report 2: O K was a 27 year primigravida presented at a gestational age of 30 weeks with total hematuria. She had no previous history of haematuria and there was no history of trauma to the abdomen. Clinical examination revealed a young woman who was asthenic and worried. She was pale. Abdominal examination revealed a gravid uterus which was about 34 weeks with no tenderness. Abdomino pelvic ultrasound scan confirmed a bulky uterus with twin gestation; both fetuses had normal heart activities. She had urethrocystoscopy which did not reveal any abnormality. The Haemoglobin genotype was SC. The haematuria continued unabated and she was transfused with 4 units of blood. A request for a 'single shot' intravenous urogram was turned down by the hospital radiologists on account of teratogenicity. Days later, a repeat abdominal ultrasound examination showed that only one fetal heart was seen, and a diagnosis of vanishing twin syndrome was made. Despite the ongoing haematuria, the patient eventually requested for a transfer to another hospital on account of proximity to family relations. Informal information received later revealed that haematuria later stopped spontaneously and she had normal delivery.

Case 3: SK A 27 year old lady with HbSC, G2P1+0(1 alive) presented at 37 weeks gestation with a 2 day history of haematuria which was total and lasted for further two days. There was no bleeding from other sites. The pregnancy ended at 38 weeks with the normal delivery of a normal baby boy. The hematuria resolved spontaneously after about 1 week post-delivery. She had haematuria in her first pregnancy which ended in the delivery of a boy at term. There was no need for blood transfusion. The patient did not agree to cystoscopy and further investigation apart from haemogram which was normal until labour.

Case 4: AA a 31 year old woman unbooked multiparous woman who was admitted on account of haematuria at about 34 weeks of pregnancy. She denied previous episodes of hematuria at any time. The patient refused investigations and within few days on admission the haematuria resolved and the patient asked for discharged against medical advice.

Discussion:

Generally, gross haematuria is potentially an ominous sign, and should therefore be reasonably investigated without delay, as much as possible, in order to come to a diagnosis. However, it must be stated that not all the time is a definite diagnosis made after exhausting the available investigation armamentarium such as radiological, endourological etc. A diagnosis of exclusion, essential hematuria, may then be made. However, this is not an easy diagnosis to make in the developing countries where reasonable levels of diagnostic equipment are not available in most centers [4]. Making a definitive investigation is also made difficult by the refusal of patients to undergo comprehensive investigation especially after haematuria has subsided. This was recorded in some of our patients and in patients from other reports on HIP

Although gross HIP, could be due to causes of haematuria as in the general population, it has been largely attributed to certain self-limiting, pregnancy related causes. These pregnancy- related causes include the 'nut cracker phenomenon'. This usually refers to the compression of the left renal artery between the descending aorta and the superior mesenteric artery[5]. The nutcracker phenomenon may also occur on the right side when, there is right renal vein hypertension [6]. The pregnancy related causes also include urinary bladder varicosity[7]. These causes could be explained by the increase in the levels of some hormones and mechanical factors. The mechanical factor is related to the increased intravascular pressure due to the compression of blood vessels by the gravid uterus resulting in the dilatation of these vessels and subsequent rupture in the collecting system, renal pelvis and in the urinary bladder mucosa. Usually they are self-limiting and they may recur in subsequent pregnancies. Another self-limiting cause with a different pathogenesis is papillary necrosis from sickle cell haemoglobinopathy. A series of HIP from this was documented by Kassam et al[8]. It is also instructive that the three patients of the four in this series with known hemoglobin genotypes had traits of sickle cell haemoglobinopathy. Although papillary necrosis in patients with haemoglobinopathy is not limited to the pregnancy state, it could occur in any patient experiencing stress; and pregnancy is a stressful condition.

There are other causes of haematuria in pregnancy which are ominous and require prompt and accurate diagnosis. These causes include bladder tumours [9] and retroperitoneal rupture of renal tumour[10]. Complications of therapy have also been identified as causes of HIP. A documented example is following the treatment of anti-phospholipid syndrome, which is a systemic autoimmune disease with thrombotic tendency. Severe hematuria has been reported following the treatment of anti – phospholipid

syndrome based on consensus guidelines with low-dose aspirin combined with unfractionated or low-molecular-weight heparin because if not treated, anti-phospholipid syndrome may cause habitual abortions[11].

Although hematuria often resolves spontaneously in many of the cases of HIP, with no long term sequelae, but the fact that HIP could be due to causes as in the general population, therefore, requires that the patient should be investigated and the exact diagnosis made as much as possible. The need for prompt diagnosis and intervention cannot be over emphasized and this is supported a report from Canada of delayed diagnosis of renal cell carcinoma in a pregnant woman who first had macroscopic hematuria at 21 week gestation without comprehensive investigation until delivery. This patient's cancer progressed rapidly and she died within a year after she delivered the baby[12]. Unfortunately, in our report, two out of four of our patients did not agree to have further, investigations especially after delivery when hematuria has subsided. This fact and the limitation of inadequacy of investigations, made it difficult for us to have definite diagnoses in our series. The refusal of patients to have further investigations after delivery and cessation of hematuria was observed not to be limited to our patients as Venyo also reported similar behaviour[13]

Hematuria in any patient should be reasonably investigated. Because microscopic hematuria has been reported to be mostly innocuous in pregnancy elaborate investigations are usually not necessary. However, gross HIP as in all patients needs to be adequately investigated. Although, the definitive diagnosis is not always made but common dangerous or life threatening causes should be ruled out. Since bleeding into the urinary tract could occur from any part of the urinary tract, the whole urinary tract should be investigated as much as possible. The processes of making definite diagnosis and treatment may pose significant risks to the integrity of the pregnancy. The examination of the entire urinary tract may be necessary and this usually involves the appropriate use of endoscopy and imaging techniques. Rigid cystoscopy is usually not convenient for the pregnant woman; the gravid uterus makes positioning inconvenient and could trigger uterine contractions and subsequent abortion or premature delivery. Investigation of the upper urinary tract involves mainly radiological investigations. These usually involve the use of radiation which is potentially teratogenic and radiologists are usually unwilling to expose pregnant women irrespective of the stage of pregnancy. The fear of teratogenicity in all pregnant patients is scientifically baseless because the accepted cumulative dose of ionizing radiation in pregnancy is 5 rad, and no single diagnostic study exceeds this maximum. For example , the amount of exposure to the fetus from 2 views of chest radiographs of the mother is 0.00007rad and the most sensitive time period is the 10 -17 weeks of gestation. Oftentimes, the cause of controversies among physicians and radiologists as to why a pregnant woman cannot have an important radiological investigation is the lack of the knowledge of the scientific basis of imaging [14]. A single exposure of intravenous urogram has been found to be safe as the estimated fetal dose per examination is 1.398rad and multiple views of abdominal x-ray gives a cumulative fetal dose 0.245 rad[15]. This implies that a pregnant woman beyond the period when the fetus is vulnerable could safely have between 3 and 20 sessions of the aforementioned investigations respectively. This controversy was observed in the management of the patients in our series as the radiologists turned down the request for intravenous urogram in two patients despite the fact that the pregnancies had progressed beyond 20 weeks gestation. Based on this fact, we advise that intravenous urogram could be safely carried out after 24 weeks of pregnancy when considered necessary in making diagnosis. Added to this, as it occurred in our series, once the patient delivers and haematuria stopped it is difficult to get the patient back to have complete investigations. It is important to note that the two patients in our series that had cystoscopies had no abnormalities in the lower urinary tract. The upper tracts were not adequately investigated and IVU which would have helped in assessing the upper tract could have been safely carried.

Also the dilemma as to when to intervene when there is a need for surgical intervention is also genuine when fetal survival is considered. Two of the patients in our series were each transfused with at least three units of blood. In Nigeria, availability of allogeneic blood transfusion is often an uphill task. Usually, there are no altruistic donors. The system requires that relations of patients donate blood for their sick loved ones. The need to replace blood loss urgently in these patients cannot be over emphasized. The two patients in our series who needed to be transfused with blood were the ones that had fetal losses. The management of patients with HIP in the Nigeria is therefore compounded by the challenges of not having enough blood to replace losses from haematuria. In this series, there were two cases of fetal losses. In the four cases in our series, one of the women was a primigravida while two were secundigravidae. The fourth patient was in the third pregnancy. This showed that haematuria in pregnancy could happen during any pregnancy and could be recurrent in subsequent pregnancies as was the case in two of the patients. This probably showed that the earlier the patient presents with haematuria in pregnancy the higher the risk of fetal loss. This assertion is supported by Itoh et al who reported fetal survival in a case in which haematuria started in the third trimester [5]. The reason for fetal loss may be related to the fact that the younger the fetal

age the more likely they succumb to hypoxia from anaemia. This then requires that hemodynamic disturbance from haemorrhage must be avoided as much as possible in pregnancy and blood loss through haematuria in pregnancy or due to any other cause should be corrected promptly. Any patient with HIP which is severe enough to require blood transfusion should be treated with all attentions and regular fetal monitoring should be done; and if the fetus has attained reasonable viability status, it may be wise to deliver the pregnancy and nurse the neonates in the neonatal intensive care units.

HIP is a distressful condition to the patients; relations, especially the husband or partner; and the attending physicians. It is distressing to the patients because of the physical and psychological trauma of having blood in the urine. Often the haematuria is associated with clot retention causing the patient significant discomfort. The thought of losing the pregnancy which is real, adds to the psychological trauma. It is distressing to the partner because of the fear of possible loss of a partner and or the pregnancy. The fear of recurrence in subsequent pregnancies which occurred in one of the patients in this series in her second pregnancy may be another source of concern to the patient and the spouse. This may also be a source of marital disharmony as reported in the aforementioned patient who was divorced by the husband after the recurrence in the second pregnancy. HIP presents a lot of challenges to the gynaecologists and the urologists in attendance.

Conclusion: There is a need to have guidelines for the management of patients with HIP. This is to improve patient safety, reduce fetal loss and avoid unnecessary controversies between physicians in the management of these patients.

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