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Case Report

Giant incisional hernia with a protruding pregnant uterus and overlying thinned-out ulcerated skin: A case report and review of literature

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Abstract

Incisional hernias are part of the workload of the General Surgeon, for which there are known risk factors, and surgical repair can be challenging. The aim of this study was to report an unusual presentation of a giant incisional hernia with a protruding pregnant uterus and thinned-out ulcerated skin, seen at the Rivers State University Teaching Hospital in Port Harcourt in the year 2024.A 38-year-old female, Gravida 2 Para1, who presented with protrusion of the lower abdomen, pain, and bleeding from a sore at the lower abdomen. She had a previous Caesarean section complicated by wound sepsis and prolonged hospital stay. Significant examination findings included enlarged (gravid) pendulous abdomen, a broad sub-umbilical mid-line scar, an overlying area of shallow ulcer (10cm by 6cm), surrounding hyperpigmented skin, and tenderness at the sub-umbilical area. There was a protruding mass that measured 20cm by 14cm at presentation, which increased in size, extending to the mid-thigh at the time of surgery. She had multi-specialty care that ended with an elective repeat Caesarean section, hernia repair, abdominoplasty, and the outcome of care was satisfactory. A complicated giant incisional hernia is reported in a patient with gestational diabetes mellitus. A successful outcome was guaranteed by prolonged admission and multidisciplinary care.

Keywords: Giant Incisional Hernia; Pregnant Protruding Uterus; Ulcerated Thinned Skin; Port Harcourt; Nigeria.

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Introduction

Incisional hernias are part of the surgical workload of the General Surgeon and occur in 10-30% of midline abdominal incisions.[1, 2] Following repair, recurrence is seen in 32% of these hernias.[3] Incisional hernias occur more following open than laparoscopic surgeries[4], and the following factors have been associated with increased risk of occurrence: patient-related risk factors - diabetes mellitus, obesity, tobacco smoking, immunosuppression; surgery-related factors - type of incision and closure, and surgical site infection.[5, 6] Additionally, certain factors - increasing age, increasing body mass index (BMI), female sex, diabetes mellitus, ASA score III–IV, gynecologic surgery, and constipation were reported to be associated with the occurrence of incarceration in incisional hernia.[3] Some of these hernias do grow to very large sizes and are associated with challenges in the surgical repair.[7]

A giant incisional hernia is regarded as a hernia that is more than 10 cm in minimum width, as reported in several studies.[8-11] Correction with the use of a prosthesis is therefore recommended for a good outcome.[9, 10, 12] Incisional hernia, just like other surgical diseases, can also occur in pregnancy with its associated challenges, and repair during Caesarean section has been recommended in available guidelines and systematic reviews for their care.[13-15] There have been several reports of incisional and anterior abdominal wall hernias occurring in pregnancy,[16-24] and some of them were giant incisional hernias inclusive.[20, 23, 25, 26] Two cases reported from India were associated with rupture and evisceration of the bowel.[25, 26] Such large incisional hernias have also been reported from centers in Nigeria: e.g., from Ibadan in Western Nigeria,[27] Ile-Ife in Osun State in Western Nigeria,[28] Nnewi in Eastern Nigeria,[29] Ilorin Kwara State in Northern Nigeria,[30] Zaria Kaduna State in Northern Nigeria,[31]Asaba Delta State in Southern Nigeria,[32] Osogbo in Osun State Nigeria,[33] and from others Nigerian centers.[34, 35] Although not strictly incisional, similar surgical pathologies have been reported as giant umbilical hernia in pregnancy in Owerri, Nigeria,[36] in Port Harcourt, Nigeria,[37] in Sokoto, Nigeria,[38] and in Zaria, Northern Nigeria.[39] In the latter case in Zaria, the patient had spontaneous vaginal delivery while being prepared for Caesarean section. The case report from Sokoto, Nigeria, was peculiar in that there was a rupture of the uterus in the protruding hernia sac.

In Port Harcourt, Nigeria, a 15-year review of anterior abdominal wall hernias (including incisional) reported the predominant repair technique for hernias to be suture repair.[40] Incisional hernia has also been reported earlier among the spectrum of general surgical diseases at our center[41] and other centers in Nigeria.[42, 43] Although incisional hernia is a long-known occurrence following abdominal surgeries, its occurrence and extension to the mid-thigh with overlying septic ulcer in a gestational diabetic patient is what is uncommon and worthy of reporting. Repair of incisional hernia during Caesarean section has also been reported in Nigeria[44] but not in the manner in which it occurred in our patient, hence the report. The aim of this study is therefore to report an unusual presentation of a giant incisional hernia with a protruding pregnant uterus and thinned-out ulcerated skin, seen at the Rivers State University Teaching Hospital in Port Harcourt in the year 2024.

Case Presentation

Clinical History: The patient was a 38-year-old female, Gravida 2 Para1, with secondary level of education, who presented to the emergency unit of the hospital on the 3rd of September 2024 on referral from a private hospital (where she booked) with complaint of bleeding from the skin (overlying a protrusion at the site of previous surgery) of 7 hours duration. The bleeding was gradual in onset, fresh, and trickling down the abdomen. There was no associated blood clot, dizziness, weakness, and no bleeding from the vagina. There was no preceding trauma. The gestational age at presentation was 24weeks. She had noticed a bulge at the lower abdomen about 4 months earlier, which gradually increased in size and later developed a sore at the overlying skin. However, this bulge had increased in size to result in a pendulous abdomen over a period of about two months to the extent of the patient's midthigh in supine position (see Figures 1,2,3). She had declined history of application of surface herbal

medications. There was dull pain at the site of the sore, which was not associated with vomiting or constipation, and the patient was able to tolerate her normal diet. There was no associated fever, and no features of labor. She had prolonged obstructed labor in her previous confinement, which ended in caesarean section, and the post-operative period was complicated by purulent wound discharge, warranting her prolonged admission for about three weeks. There was no history of fetal macrosomia (first baby's weight at delivery was 3.5kg), and no family history of diabetes mellitus. The drug history and past medical history were not significant, and there was no other significant information in the patient's history.

Clinical Examination Findings: Physical examination revealed a young anxious woman who was not pale, afebrile, anicteric, and had no pedal oedema. The vital signs at presentation were stable (pulse rate of 76/minute, blood pressure of 110/70mmHg, respiratory rate of 18/minute, and temperature of 36.9°C). The head & neck, chest, and cardiovascular system had no significant abnormal findings. She had an enlarged (gravid) pendulous abdomen, a broad sub-umbilical midline scar, an overlying area of shallow ulcer measuring about 10cm by 6cm, surrounding hyperpigmented skin, and tenderness at the sub-umbilical area. The protruding mass measured 20cm by 14cm. The umbilicus had a defect measuring 6cm by 4cm; however, the defect of the main site of protrusion could not be delineated due to the tenderness. The fundal height was 26/52weeks, and the fetal heart rate was heard and normal. The bowel sounds were normoactive.

Figure 1: Preoperative Clinical Photographs (Anteroposterior of Supine View at presentation)

Figure 2: Preoperative Clinical Photographs (Lateral View – Just before surgery)

Figure 3: Preoperative Clinical Photographs (Anterior View – Just before surgery)

Investigations: Investigations requested at the time of admission and their results are as follows: fasting blood glucose – 6.5mmol/l, post-prandial blood glucose – 8.0mmol/l, full blood count revealed normal values; the serum electrolyte, urea, and creatinine showed normal values; analysis of the urine showed normal values; obstetric ultrasound scan done on the 6th of September 2024 had revealed a single viable singleton fetus at 24 weeks in breech presentation and longitudinal lie, and the estimated fetal weight was 0.8kg. There was the presence of a severe incisional hernia, a uterine myoma nodule, and a bulky pendulous uterus bulging into the hernia. Another obstetric ultrasound scan done on the 30th of October 2024 showed an active third-trimester fetus co-existing with uterine myoma and a huge infra-umbilical hernia. The ultrasound estimated gestational age was 31weeks + 3days, and the estimated fetal weight was 1.7kg ± 249g.

Diagnosis: A diagnosis of a huge incisional hernia with overlying septic ulcer and gestational diabetes mellitus in the 3rd trimester was made.

Treatment: The patient was managed by a combined team of specialists involving Obstetricians, General Surgeons, Endocrinologists, Dieticians, Nurses, and Anesthetists. She was admitted and treated conservatively with bed rest, hematinics, and antimalarials for care of pregnancy; dietary control for gestational diabetes mellitus; daily Sofra-Tulle gauze dressing with antibiotics and analgesics (prn) for wound sepsis, and abdominal pain. At term (after about eleven weeks of admission), the patient had elective repeat Caesarean section with delivery of a live 2.5kg male baby, hernia repair, and abdominoplasty were done at 37weeks completed weeks of gestation on the 21st of November 2021, under combined spinal-epidural anesthesia (see Figures 4 &5). The following surgical technique was used: an elliptical incision through which a large part of the ulcerated, hyperpigmented, redundant skin and subcutaneous tissue were marked and excised without excising any part of the rectus sheath; the defects in the rectus sheath were identified, dissected and closed with non-absorbable sutures taking wide bites from the sound edges without tissue strangulation (non-mesh suture/tissue repair); and the skin was closed with a newly created inverted umbilicus.

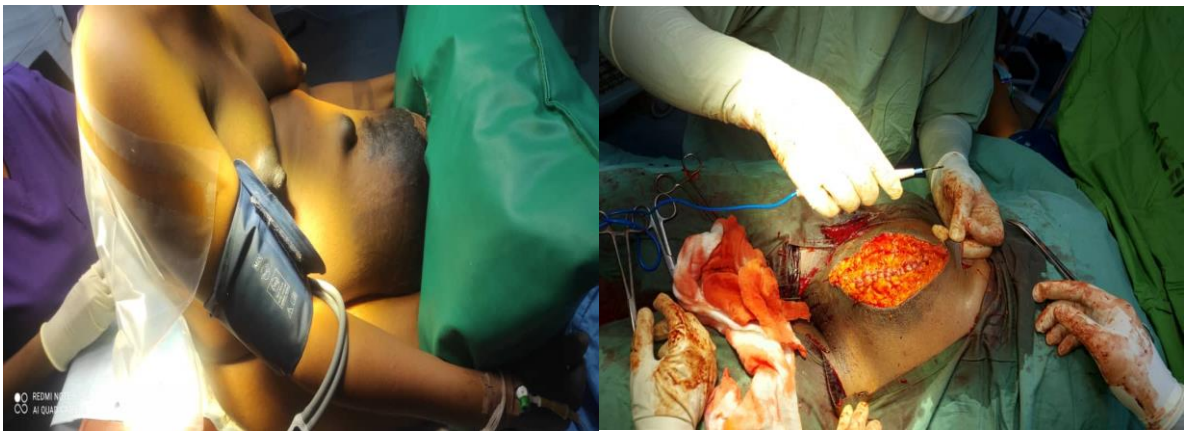

Figure 4: Intraoperative - During Epidural Anaesthesia, and After closure of the rectus sheath)

Outcome/Follow Up: The outcome of care was satisfactory, as evidenced by a happy patient and family carrying a live healthy baby, well healed operation wound and an improved "look of the abdomen", relieved healthcare givers, and subsequent discharge of the patient on the28th November 2024 being the7th day after surgery (see Figure 5).

Figure 5: Immediate Post-operative (AP/Supine View) At Discharge - Post-op (AP/Supine View)

Ethical consideration: Informed consent was obtained from the patient for the use of their medical history without identifiers, for the public good. The approval of the Research Ethics Committee of the Rivers State University Teaching Hospital was also obtained.

Discussion

Giant incisional hernia in pregnancy is a source of anxiety for the patient and family, and its management is challenging for healthcare workers. This is true especially as there were two lives involved, and the outcome of the disease condition may end in uterine rupture or rupture of the giant hernia and consequent evisceration of abdominal organs, as seen in some reports.[25, 26, 28, 38] These complications have consequences, including fetal and or maternal morbidity and mortality. Our patient, however, did not experience these complications. Successful management, therefore, requires drawing from the knowledge in available guidelines and useful lessons from the experiences of other professionals in similar areas of practice in research work, especially involvement of multispecialty care. Our patient was managed by a team of Obstetricians, General Surgeons, Endocrinologists, Dieticians, Nurses, and Anesthetists who all contributed their knowledge, leading to a live healthy baby, well-healed operation wound, and an improved "look of the abdomen", a happy patient and family, and relieved healthcare givers.

This patient had a surgical site infection that complicated the previous Caesarean delivery. The evidence in favor of this line of thinking was the history of prolonged obstructed labor of 48hours in a peripheral hospital; history of purulent discharge from the wound and prolonged admission (three weeks) after that surgery; and presence of a broad scar. These factors most probably partly accounted for the current incisional hernia. There was also gestational diabetes mellitus, a comorbidity that is a known risk factor for the furtherance of infection. These risk factors have been reported to be associated with the occurrence of incisional hernias.[3-6] Our study shares similarity with almost all other reports where surgical site infection, among others, was found to be the dominant risk factor, especially in Nigeria[27, 29-31] and from other countries.[20, 45] Our patient's presentation as an emergency with bleeding from the ulcerated wound is similar to that of another report in the United Kingdom.[23] Although the edges of the defect could not be defined preoperatively due to the tenderness, the size of the protruding mass measuring 20cm by 14cm, and the obstetric ultrasound finding of a huge infra-umbilical hernia, qualified the hernia as a giant hernia as defined by other researchers.[8-11]Above this mass was also a defect at the umbilicus, implying the co-existence of an umbilical hernia in the same patient. The occurrence of a pendulous abdomen extending to the mid-thigh suggests gravid uterine protrusion, excessive stretching of the skin, and consequent deformation of the anterior abdominal wall. The hyperpigmentation of the skin surrounding the ulcerated area also contributed to the ugly look, requiring or justifying the abdominoplasty that the patient had. A similar experience of redundant skin requiring abdominoplasty was also reported in other studies.[27, 29, 30]

The obstetric considerations were based on the issues surrounding this patient who presented to the obstetricians at the 24th week of gestation, during which the pregnancy was not yet viable, in the presence of the challenges prevalent in the mother. The additional comorbidities of gestational diabetes mellitus, presence of ulcer overlying the thinned skin separating the herniating gravid uterus, were additional issues that constituted significant challenges to obstetric care, requiring special considerations, part of which was the involvement of the multispecialty team care that led to the favorable outcome seen in this patient. Unlike the experiences of uterine perforation and evisceration of bowel reported in some other studies[25, 26, 38], our patient escaped these complications. The reason for this experience, in spite of the thinned-out skin, could partly be because the patient was admitted throughout the period of care, which contributed to reducing the persistent mounting pressure of gravity and the weight of the uterus, hence the favorable outcome. Deferring delivery to the 37th week of gestation had improved fetal maturity for extrauterine existence and avoided the burden of prematurity both on the baby and parents. This is in conformity with guidelines and practice for the care of incisional hernia in pregnancy.[13-15]

Intraoperative anesthetic considerations for this patient involved the use of combined spinal epidural anesthesia and monitoring. The combined spinal-epidural technique combines the benefits of both. It provides the fast onset, density, and reliability of the subarachnoid block and the ability to extend the duration of anesthesia via the epidural catheter.[46] The intra-operative control of blood sugar of diabetic patients could be challenging as the stress induced by surgery and most anesthetic drugs gives rise to hyperglycemia. Hence, the general principle of care is to avoid excessive hyperglycemia, ketosis, and hypoglycemia, and proactive management of perioperative complications.[47, 48] The use of spinal or epidural anesthesia is therefore known to modulate the secretion of the catabolic hormones, thereby helping to achieve the desired objective.[49-51] Our patient, who had pre-operative blood sugar controlled with diet, had intra-operative blood sugar controlled with administration of intravenous normal saline (no sugar, no insulin infusions) combined with intraoperative blood sugar monitoring. This is a recognized intraoperative mode of care for diabetic patients undergoing surgery.[52]The use of spinal anesthesia for Caesarean section is common in our area of practice, and was used as reported in almost all other Nigerian studies mentioned earlier.

In this report, a non-mesh repair was carried out with abdominoplasty, deviating from the standard as reported in a systematic review, where the use of mesh in the repair of large incisional hernia (10cm diameter or surface of 100 cm^2) was recommended to be associated with the least recurrence rates.[10] This finding is further supported by a recent report from a large pool of the United States database, in which ventral hernia recurrence was noted to increase over time, with a five-year recurrence of 40% when repaired with mesh, and 70% when repaired without mesh.[12] Although open mesh repair had been carried out in Uyo, Nigeria, for 10 pregnant women with incisional hernia during Caesarean section with good outcome[44],our patient, however, had some contraindications to the use of mesh, necessitating the adoption of tissue repair. These contraindications included the presence of an ulcer overlying the site of hernia defect in a gestational diabetic patient; patient was still in her reproductive age and had future ambition of having more babies; and the repair of the hernia was carried out at the time of delivery through Caesarean section – additional risk of infection. We are however, aware that repair of incisional hernias with the use of mesh is recommended and have been successfully carried out at the same time of Caesarean delivery as reported in by other researchers.[13, 14, 44] Additionally, this patient was a young married Nigerian woman with only one child, and who was still desirous of having more babies. Mesh repair has been reported to be associated with unbearable pain during subsequent pregnancy [14, 53, 54] and has the potential of preventing easy access to Caesarean delivery in subsequent pregnancy. Tissue repair, as used in our patients, would prevent these disadvantages.

Study Limitations: Long-term outcome is not provided in our report, and therefore, it forms a basis for future studies on this subject.

Conclusion

A complicated giant incisional hernia is reported in a patient with gestational diabetes mellitus, at 24 weeks of gestation. A successful outcome was guaranteed by prolonged admission and multidisciplinary care.

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Conflict of Interest: None declared.

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