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Sulleiman Charles Muttani *

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Research Article

Incidental intra-abdominal pregnancy diagnosed at Singida regional referral Hospital, Central zone, Tanzania: Case report

Ridhiwani Hamidu Manyuti [1], Sulleiman Charles Muttani [1,3]*, Paul Emmanuel Ndeki [1], Yohana Pius Shayo [1], Ibrahim Kiunsi [1], Tinya Ntoke [1], Faraja James Kahema [1], Pili bolosi [1], William Soa [1], Daimon Lugano [2], Rukia Ibrahim [2], Muhaji k. Mohammed [4], Victorina Ludovick [5], David Mwasota [6] Gilbert Waria [2]

[1] Singida Regional Referral Hospital, Tanzania; Obstetrics and Gynecology Department, Tanzania.

[2] Singida Regional Referral Hospital, Research Unit, Tanzania.

[3] Consultant obstetrician and gynecologist, Singida Region

[4] Singida Regional Referral Hospital, Surgery Department.

[5] Regional Medical Officer, Singida.

[6] Singida Regional Referral Hospital, Medical Department.

***Corresponding Author:** Sulleiman Charles Muttani, Singida Regional Referral Hospital, Tanzania; Obstetrics and Gynecology Department, Tanzania.

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Abstract:

Background:

Intra abdominal pregnancy is one of the rare and life-threatening types of ectopic pregnancy which has been implanted in the peritoneal cavity outside of the uterus, fallopian tube and ovary. An embryo that implants and starts to grow on the viscera or abdominal peritoneum is described as a primary abdominal pregnancy. This article will create awareness of capturing all ectopic pregnancies from the lower level to the higher level health facilities in the country so as to know the magnitude of this problem.

Case Description/ Presentations: A 22 years pregnant woman, from mpambaa, kaselya, singida region, the central zone of Tanzania, G2P1L1 with Gestational Age (GA) of 41 weeks and 2 days (by LNMP) was referred from the lower level facility to Singida Regional Referral Hospital for further management, with the referral diagnosis of Intrauterine fetal demise/death(IUFD) diagnosed based on patient history (mother reported absence of fetal kicks) and physical examination(FHR not heard on fetoscope).

Diagnosis of intra-abdominal pregnancy based on incidentally intra-operatively findings . The intra-operatively findings concluded the diagnosis of intra-abdominal pregnancy. The patients didn't do obstetric ultrasound throughout the antenatal visits because the facility she was used to attending Antenatal clinic had no ultrasound.

Conclusion and Recommendation: Capacity building to health practitioners in identifying and diagnosing intra-abdominal pregnancy based on clinical manifestations and radiological diagnostic features should be done to all health facilities levels.

Keywords: intra-abdominal pregnancy; clinical features; radiological features; management modality

Introduction

Ectopic pregnancy is derived from the Greek word "ektopos", meaning out of place, and it refers to the implantation of a fertilized egg anywhere beyond the endometrial cavity of the uterus. The majority of ectopic pregnancies occur in the fallopian tubes (95%), the remaining percent occur in other sites including the cornua of the uterus, the ovaries, the cervix, in a cesarean delivery scar and in the abdomen.

Intra abdominal pregnancy is one of the rare (0.6-4%) and life-threatening types of ectopic pregnancy which has been implanted in the peritoneal cavity outside of the uterus, fallopian tube and ovary[2]. It is a type of ectopic pregnancy whereby a gestation implants within the abdomen but outside the female reproductive organs [1]. An embryo that implants and starts to grow on the viscera or abdominal peritoneum is described as a primary abdominal pregnancy. It may continue to grow to an advanced gestational age, a unique feature among all kinds of ectopic pregnancy where most of them lasts before second trimester [1,6]

There are usually no pathognomonic signs of intra abdominal pregnancy [1,2]. Rather, the presentation varies depending on the location of implantation and gestational age[1,2**].**

This case report will create awareness of capturing all ectopic pregnancies at their earliest stage by using clinical manifestations and Radiological diagnostic features in a country so as to know the magnitude of this problem which will also determine the incidence of intra abdominal pregnancies among ectopic pregnancies diagnosed

Case Description

A 22-years pregnant woman, from Mpambaa, Kaselya, Singida region, the central zone of Tanzania, G2P1L1 with Gestational Age (GA) of 41 weeks and 2 days based on her last normal menstrual period (LNMP) was referred from the lower level facility to Singida Regional Referral Hospital for further management with the referral diagnosis of Intrauterine fetal death(IUFD)- diagnosis based on the patient history (absence of fetal kicks) for duration of 24 hours prior to admission and physical examination (FHR not heard on fetoscope).

The patient was admitted and reviewed at our setting where some investigation cility to Singida Regional Referral Hospital for further management (not specified)with the refercility to Singida Regional Referral Hospital for further management(not specified)with the referns were done

Obstetric ultrasound revealed singleton intrauterine pregnancy with estimated GA of 40 weeks, with no sign of viability, no sign of advanced placenta maturations (calcifications), Amniotic fluid index was 10cm. Complete blood Count revealed hemoglobin level of 13g/dl and Platelet of 137 x10^6 (within the normal range).

Management and outcome

The patient was managed in the ward with supportive management and planned for induction of labor using a uterotonic agent (misoprostol) for 12 hours; however, she had a poor progress of labor, and labour dystocia. Then she was planned for a laparotomy secondary to labor dystocia and IUFD. Intraoperative findings: abdomen was opened in layers through Sub umbilical midline incision, fetus, and the placenta was found incidentally in the abdominal cavity with the placenta being sited in the porch-like structure beneath the Transverse(Figure A, B) and ascending colon(Figure C).

The baby was extracted with the option of retaining the placenta in the abdominal cavity as the conservative management was chosen to reduce the risk of massive bleeding from the large abdominal blood vessels (abdominal aorta). The approximated blood loss was250mls. Homeostasis was achieved and the abdomen was closed in layers.

The patient was nursed in the post-operative ward with parenteral antibiotics, drainage kept in situ, close monitoring of the vitals and other post-operative orders. However 24 hours post laparotomy, the patient's condition changed, and her vital signs were deteriorating (T=34, BP=60/20mmHg, PR=129; RR=28, SPO2= (89-90) % in room air, restless, diaphoretic and complaining of severe abdominal pain.

She was diagnosed to have hemorrhagic shock secondary to internal bleeding. Urgent resuscitation was done, vitals stabilized then sent again to the operating room for re-laparotomy with a Haemoglobin level of 6g/dl.

Significant hemoperitoneum (clots and fresh blood) of approximately 2000 mls was found, placenta on the transverse (Figure A, B) and ascending colon (Figure C) which was left in-situ was found oozing blood. Enucleation of the whole placenta tissues was done, placenta membranes were removed thoroughly with meticulous techniques, and reduction of more manipulations was highly observed, with no involvement of large vessels (abdominal aorta or inferior vena cava). Then the bleeding site was stitched to control bleeding. Hemostasis was achieved and peritoneal lavage was done using 500mls of warm normal saline,The abdomen was closed in layers and then drainage was kept in-situ . The patient was then transfused 4 units of whole blood and 3 units of Fresh Frozen Plasma (FFP), nursed at the High Dependency Unit (HDU),

The patient improved after 72 hours, her vital signs were T=37, BP=110/78mmHg, PR=75b/m, RR=18c/m, SPO2=94% In Room Air. She was then transferred to general post operative ward, obtained further improvement with control hemoglobin level of 10g/dl, stable vitals, then patient discharged home with oral antibiotics, ant -pain and integratedIron through Obstetrics and Gynecology clinic for follow up.

Figure A: Showing placenta inside the intra-abdominal pouch.

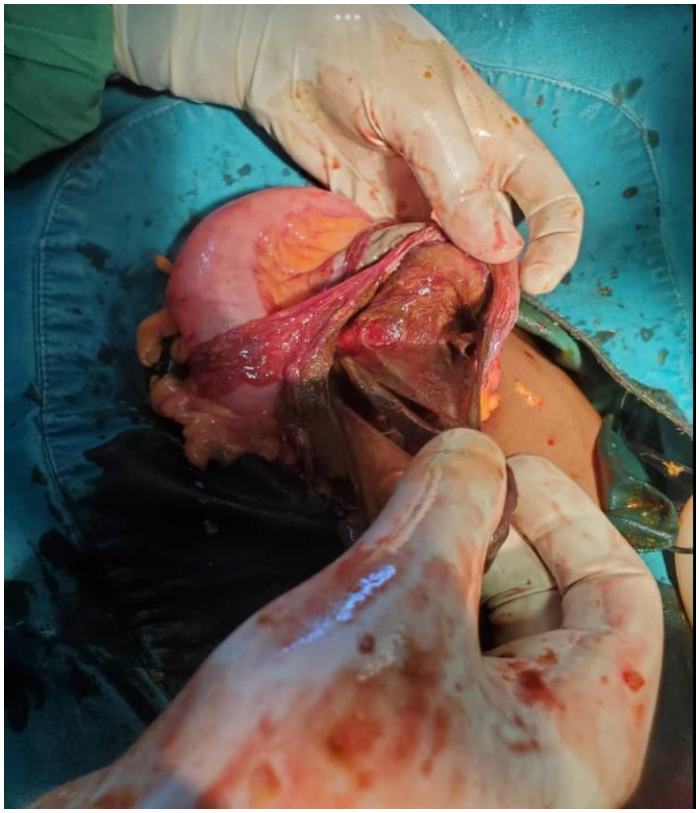

Figure B: Showing intra-abdominal pouch attached to Transverse Colon.

Figure C: Showing intra-abdominal pouch attached to the ascending colon and omentum.

Discussion and Knowledge.

An abdominal pregnancy is a gestation that implants within the abdomen but outside the female reproductive organs[1]. Abdominal pregnancy is the least-common of all types of ectopic pregnancies, representing ~1% of ectopic pregnancies, with an incidence of 1 per 10,000 live births[1, 2,3]. This is the second case at Singida regional referral hospital in which the first one was diagnosed ten years ago. Abdominal pregnancies, especially when they progress to advanced gestational age, can lead to significant maternal morbidity and mortality[1,4,5] Because of abdominal pregnancy's variability of clinical presentation, this condition often poses significant challenges in diagnosis and treatment[1].

An embryo that implants and starts to grow on the viscera or abdominal peritoneum is described as a primary abdominal pregnancy[1]. This may occur if there is a reversion of the path of the fertilized ovum out the distal end of the tube, or if fertilization of the ovum occurs at an intraperitoneal site such as the posterior cul-de-sac[1,6]. Patients with prior salpingectomies or other tubal surgeries may develop fistulous tracts to the abdominal cavity at the level of the cornua, allowing the fertilized ovum a path out of the uterus and into the peritoneal cavity[1,7]

In other cases, embryos may implant in the abdominal cavity after a uterine or tubal rupture, which may lead to secondary abdominal pregnancies[1] .

Abdominal pregnancies may also result from assisted reproductive technologies: via uterine perforation during embryo transfer or retrograde flow of transfer media[1,8]. If an abdominal pregnancy has sufficient trophoblastic invasion and implants in a location with physical space to expand, it may continue to grow to an advanced gestational age, a unique feature among all kinds of ectopic pregnancy[1,6] and this is similar to our case diagnosed as advanced intra-abdominal pregnancy at GA of 42 weeks.

In a review of case reports of early abdominal pregnancies (identified at <20 weeks' gestational age), the most common location was the pelvic peritoneum (24%) with the posterior cul-de-sac (20%) more common than the anterior cul-de-sac (4%)[1,9]. Other commonly reported locations are the uterine serosa, omentum (as seen in our case), and bowel[1,9] which is similar to our case in which implanted into the Transverse colon, ascending colon and omentum(see figure A, B, and C); more rarely reported sites include the liver,10 spleens,[1,11,15] and retroperitoneum[1,12,13] in recognition and highly concern is that, most publications about abdominal pregnancies are single case reports or small case series, so these data may be biased by a tendency to report on the most-memorable cases [1,9].

There are no pathognomonic signs of abdominal pregnancy[1,2,16]. Rather, the presentation varies depending on the location of implantation and gestational age[1,2]. Early abdominal pregnancies may be asymptomatic and first identified on routine imaging such as ultrasound (US)[1,14] Among symptomatic patients in the first trimester, the most common finding is abdominal pain[1,2]. Vaginal bleeding occurs less frequently[1,15]. Because these symptoms are nonspecific, they may go unnoticed or be misdiagnosed[1,16] this is similar to this case as it was misdiagnosed as intrauterine pregnancy after an ultrasound done at a regional referral hospital while intra-operatively intra-abdominal pregnancy. If a growing abdominal pregnancy causes intra-abdominal or retroperitoneal bleeding, a patient may present with severe pain or even be in hemodynamic shock[1,12] as presented in this case after surgery which resulted in a re-laparotomy.

Even at advanced gestations, patients may remain asymptomatic, or they may report abdominal pain, painful fetal movements, or gastrointestinal distress [1,5,17,18]. A patient with an advanced abdominal pregnancy may have intra-abdominal bleeding or have sepsis if fetal demise has occurred as presented in this case in which macerated fetal death was found intraoperatively but she had no sign of septicemia. At term, an abdominal pregnancy may be mistaken for labor dystocia or uterine rupture[1,5] which is similar to this case as management of induction was initiated till the sign of failure and labor dystocia was identified. Physical examination findings may include abdominal tenderness, abnormal fetal lie, or easily palpable fetal parts[1,19] Prompt imaging by the US to determine the location of the pregnancy is helpful when available, but sometimes abdominal pregnancy is only definitively diagnosed by laparotomy [1,5,17] which is similar to our case as it was incidentally diagnosed intra-operatively.

Detection of abdominal pregnancy by ultrasound requires a high index of suspicion and awareness of unusual findings[1,20] During the first trimester, sonographic evidence of early gestational structures outside the uterus, tubes, and ovaries should raise concern for abdominal pregnancy[1,21] Sonographic diagnosis of abdominal pregnancies in the posterior cul-de-sac can be challenging because of overlying bowel[1,22] which is similar to this case as it was not easy to have a clear cut way of being intra-uterine or intra-abdominal pregnancy.

Pregnancies in the posterior cul-de-sac and broad ligament are often mistaken for tubal ectopic, interstitial, or cornual pregnancies in ultrasound[1,22] In many cases of early abdominal pregnancy, the preoperative diagnosis is tubal ectopic pregnancy, and the pregnancy is found to be abdominal at the time of surgical exploration[1,16]

At more advanced gestational ages, the original diagnostic findings on US proposed by Alli bone et al. remain useful: (1) fetus in a gestational sac outside the uterus; (2) no uterine wall between fetus and bladder; (3) fetus close to maternal abdominal wall; and (4) placenta outside the uterine cavity[1,23] Other common sonographic findings are oligohydramnios and abnormal fetal lie[1,24] which is similar to this case as it had low Amniotic fluid index of <4cm.

Other guidelines for the management of abdominal pregnancy exist because the diagnosis is rare and clinical scenarios are variable. Instead, treatment must be individualized depending on patient factors and the care environment, relying on teamwork, a multidisciplinary approach, and expert opinions.[1,2,4]

The majority of abdominal pregnancies are managed surgically.[1,9] Surgery is required when the diagnosis is unclear based on imaging or when the patient is too hemodynamically unstable to allow time for further investigation. The surgical approach depends upon gestational age, location of implantation, clinical stability, and operator expertise[1]. When possible, surgery should proceed with a multidisciplinary team including obstetrics–gynecology, anesthesia, interventional radiology, and general surgery[1,4] If the patient is clinically stable at the time of presentation, it is reasonable to consider transfer to a center with more resources including a blood bank and interventional radiology.[1,4]

In the first trimester, a laparoscopic approach may be feasible[1]. Successful laparoscopic removal of pregnancies implanted in the posterior cul-de-sac,[1,29,30] diaphragm[1,10] a broad ligament,[1,16,23] and parametrium[1,31] have been reported. Surgeons may consider local injection of vasopressin to decrease blood loss during laparoscopic resection.[1,32]

Surgical management of more-advanced abdominal pregnancies is complex because of the possibility of severe hemorrhage and damage to intra-abdominal structures. Removal of the placenta often proves to be the most-distinct surgical challenge[1,18] MRI can be helpful for determining the location and blood supply of the placenta for surgical planning[1,14] Sometimes, it may be possible to embolize the vessels supplying the placenta to decrease blood loss during delivery.[1,14,24,25]

While experts recommend the removal of the entire placenta and fetus when feasible(this is the second option selected by managing team after re-laparotomy), there are clinical situations when practitioners choose to leave all or part of the placenta in situ(this is the first option which was thought during the first phase of our case study) due to possibility of morbidity to surrounding structures if the placenta is removed or if there are insufficient resources to resuscitate a patient if bleeding is encountered[1,18,26] Leaving the placenta in situ may result in the need for reoperation due to bleeding or infection[1,7,8] (this is what exactly happened to this case as after a first operation, patient experienced massive internal bleeding in such a way that complicated into shock). While methotrexate (MTX) use postoperatively has been reported when the placenta is left in situ, there is no evidence that this speeds resolution, and MTX has the potential for adverse side effects.[1,4,27]Ultimately, surgical approach and decision-making depend upon the degree of active bleeding and the availability of resources in a clinical setting.

The American Society for Reproductive Medicine does not recommend systemic MTX for the treatment of abdominal pregnancy given that the definitive diagnosis may not be possible on imaging.[1,33] However, nonsurgical management may be an option in some cases of abdominal pregnancy that can be identified early in gestation. MTX may be administered systemically or via image-guided injection into the pregnancy.[1,11,28] Other options include image-guided vessel embolization[1,26,34] and direct injection of potassium chloride. Potassium chloride injection has been described as a treatment option in cases of heterotopic abdominal pregnancy because it does not have a teratogenic effect on the intrauterine gestation[1,34] In one large review of cases, nearly half of the patients who were managed medically required additional treatment to resolve the pregnancy.[1,9,40]

Management of abdominal pregnancies can pose ethical dilemmas because, unlike other kinds of ectopic pregnancies, abdominal pregnancies can result in the birth of a viable infant[1]. Experts recommend definitive treatment rather than expectant management when diagnosis occurs before a potentially viable gestational age because of the potential threat to maternal life[1,4,14,39] Active management affords a better opportunity for preoperative planning and controlled delivery.

When patients are managed expectantly, they may experience complications necessitating uncontrolled or emergent delivery[1,41]. Even when the fetus reaches a potentially viable gestational age, the chance of fetal or neonatal demise is high[1,4,29] this is similar to what happened to this case study as it had already macerated fetal demise. When the diagnosis is made at a perceivable gestational age, a decision about when to intervene can be complicated and must be made in conjunction with the patient and family, with consideration of what resources are available for resuscitation of the mother and neonate[1,5,30,38]

Conclusion

Diagnosing intra-abdominal pregnancy requires collaborative skills in identifying clinical manifestations and radiological findings as it has more impact on causing Intra-abdominal fetal demise/death and maternal death if not managed properly. Although care and close follow up of the fetus and the mother should be offered by all healthcare practitioners from lower level to higher levels health facilities. Capacity building for health practitioners in recognizing and diagnosing ectopic pregnancies including intra-abdominal pregnancy should be offered to all health facility levels. This is a rare case among ectopic pregnancies diagnosed at Singida regional referral hospital and other health facilities as a whole. Due to this fact, these rare cases should be included in the national electronic integrated diseases, obstetrics and Gynecological conditions surveillance response to determine the magnitude of all ectopic pregnancies as they need more attention once diagnosed due to the high rate of maternal and fetal mortality.

Patient Consent

Informed written and oral consent has been obtained from the patient for all case details and images published.

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Author Contributions

All authors are involved in diagnosing and treatment including operation, whilst the corresponding author will be recognized in writing the case report. All authors will be recognized for their contribution in drafting or revising the article, gave final approval of the version to be published, agreed to the journal submitted to, and agreed to be accountable for all aspects of the work.

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