

Advanced Abdominal Pregnancy: A Study of 13 Consecutive Cases seen in 1993 and 1994 at Komfo Anokye Teaching Hospital, Kumasi, Ghana

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ABSTRACT

Thirteen cases of advanced abdominal pregnancy (AAP) managed at the Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana, over a two-year period (1993–1994) are presented. An incidence ratio of one advanced abdominal pregnancy to 1,320 deliveries occurred during this period. The ratio of advanced abdominal pregnancy to ectopic pregnancy was 1:43.7. The perinatal mortality rate and maternal case fatality rates were 69.6% and 15.3% respectively. Recurrent abdominal pains in the gravid patient with abnormal fetal lie and prior history of tubal pregnancy and/or previous abdominal surgery were significant findings in the cases reviewed. These findings should, therefore, always prompt lucid and elaborate ultrasound examination of a pregnancy to exclude abdominal pregnancy. (*Afr J Reprod Health* 2000;4 [1]:28-39)

RÉSUMÉ

Grossesse abdominale avancée: étude de 13 cas consécutifs vus en 1993 et 1994 au Centre Hospitalier Universitaire Komfo Anokye, Kumasi, Ghana. L'étude présente treize cas de grossesse abdominale avancée (GAA) traités au Centre Hospitalier Universitaire Komfo Anokye à Kumasi, Ghana, au cours de deux ans (1993-1994). Un rapport d'incidence d'une grossesse abdominale avancée pour 1,320 accouchements pendant la période a été enregistré. Le rapport entre la grossesse abdominale avancée et la grossesse ectopique était 1:43,7. Le taux de mortalité périnatale et les taux de fatalité maternelle étaient 69,6% et 15,3% respectivement. Les douleurs abdominales rechutantes chez les patientes gravides souffrant d'une présentation fœtale anormale et ayant des antécédents de grossesse tubaire et/ou ayant subi des interventions chirurgicales, ont constitué des résultats importants dans les cas étudiés. Ces résultats devraient toujours alors inciter à des examens ultrasoniques lucides et détaillés d'une grossesse afin d'exclure la grossesse abdominale. (*Rev Afr Sante Reprod* 2000; 4 [1]:28-39).

KEY WORDS: *Advanced abdominal pregnancy, Ghana, Komfo Anokye Hospital, maternal mortality*

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Introduction

Abdominal pregnancy is a formidable task for an obstetrician and it is one of the most dreadful calamities that can befall a woman.^{1,2} This is particularly more alarming when the pregnancy survives till an advanced stage with antecedent danger of the placenta invading delicate vascular intra-abdominal structures. Advanced abdominal pregnancy is defined as a pregnancy that continues within the peritoneal cavity to a gestation greater than 20 weeks.^{1,2} This study was prompted by the occurrence of three cases, with one leading to maternal mortality, within one month, at Komfo Anokye Teaching Hospital (KATH). The objectives of the study are to determine the incidence and mode of presentation of advanced abdominal pregnancy at KATH and to identify factors contributing to maternal mortality among patients with advanced abdominal pregnancy in the hospital.

Materials and Methods

All cases referred to and/or seen at the KATH with advanced abdominocyesis before or during surgery between January 1993 and December 1994 were included in the study. Details of the socio-demographic characteristics, past medical, obstetrics and gynaecological histories were obtained from their medical records and supplemented by patient interviews where necessary. Data on incidence, however, covered the period from 1989 to 1994. Only abdominal pregnancies with fetal weights greater than 500g (gestation 20 weeks or more) were included in the study.

Results

Incidence

Table 1 shows the annual incidence of abdominal pregnancy per delivery and per ectopic from 1989 to 1994 in KATH. During the study period, a total of 13 patients with advanced abdominal pregnancy were seen at the Komfo Anokye Teaching Hospital. During the same period, 569 ectopic pregnancies were operated upon and a total of 17,161 deliveries (vaginal deliveries plus caesarean sections) were recorded. This gives an incidence of one advanced abdominal pregnancy in 43.7 ectopics and one advanced abdominal pregnancy in 1,320 deliveries.

Obstetric and Gynaecological Data

Tables 2 and 3 show the obstetric history of the 13 patients. The ages of the patients ranged from 20 to 42 years with a mean of 30.4 years. Their gravidity ranged from 0 to 5 (excluding the index pregnancy), with an average of 2.7. Two patients were primigravidae. Four out of the eight patients with three or more pregnancies (excluding index pregnancy) had a history of previous obstetric surgery. Two of these patients had surgery for ruptured tubal pregnancy while the rest had caesarean section. There were no cases of tuboplasty. One patient was grandmultipara (parity 5). Three patients had had abortions previously. One patient (case 4) reported infertility.

Clinical Presentation

History of amenorrhoea and abdominal pains was present in all the patients. Two of the patients considered their pain to be labour pains and they reported to the delivery unit. The next most common symptom was weight loss, which was present in six patients. Three patients had vaginal bleeding which led to their being diagnosed as cases of antepartum haemorrhage. Three patients also complained of painful fetal movements. One patient complained of nausea and vomiting. Abdominal tenderness was present in five cases. It was difficult to palpate fetal parts in six of the cases. The presence of easily palpable fetal parts was documented in four patients. Of these, one was presumed, pre-operatively, to be ruptured uterus. The uterus was palpated separately from the fetus in two cases. The cervix was closed in all and displaced in two cases.

Seven of the patients claimed to have felt fetal movements prior to having ultrasound examination. Three of these had no fetal heart pulsation on ultrasonography. Of these three cases, two were macerated stillbirths, while one was a fresh stillbirth. Table 3 summarises the clinical examination and findings on clinical investigation. The majority of cases did not remember their last menstrual period. The duration of pregnancy was reported as nine or more months in all except the tenth and twelfth cases, who interestingly also knew their last menstrual periods. The estimated gestational ages for these were 30 and 28 weeks respectively. Fetal malpresentation and/or abnormal lie were present in eight of the cases. There were three cases each

of transverse and oblique lie and two breech presentations.

Ten of the thirteen patients had ultrasonographic studies done. In eight patients, the ultrasound findings were supportive of the final pre-operative diagnosis of abdominal pregnancy. Of the two cases in which ultrasound failed to diagnose abdominal pregnancy, fibroid co-existent with pregnancy was the diagnosis in one and placenta praevia was the diagnosis in the other. The latter was also reported as having had a bizarre sonogram. Among the eight cases correctly diagnosed as abdominal pregnancy on ultrasound scan, the uterus was visualised as separate from the pregnancy in five. The presence of abnormal fetal lie and inability to visualise the myometrium were the basis for diagnosing abdominal pregnancy in the three other cases. Among these was case No. 6 in which the fetus was high up in the upper abdomen and lying virtually under the diaphragm. Two patients had ultrasound done twice following inconclusive previous findings. During the second scan, an empty

uterus was identified in each of the two cases and extra-uterine pregnancy diagnosed. The sensitivity of ultrasound in diagnosing abdominal pregnancy was 80%.

Two cases had abdominal X-rays done. One was done for a patient with clinical and ultrasound suspicion of abdominal pregnancy. The X-ray was adjudged to have contributed to the diagnosis. The second X-ray taken in antero-posterior direction was done for evidence of intestinal obstruction in case No.5.

Table 4 compares the admission diagnosis with the final pre-operative diagnosis. The diagnosis of abdominal pregnancy was rightly and confidently made in eight cases before laparotomy was done. In two cases, it was the second differential diagnosis. The primary diagnoses were ruptured uterus and failed induction for a prolonged pregnancy with intrauterine death (IUD). Three cases were wrongly diagnosed before laparotomy as placenta praevia, lower segment fibroid in pregnancy and intestinal obstruction with transverse lie and IUD.

Table 1 Annual Incidence of Abdominal Pregnancy in KATH from 1989 to 1994

Year	Vaginal deliveries	C/S	Ectopics	Advanced abdominal pregnancy (AAP)	Incidence AAP/ deliveries	Incidence AAP/ectopic
1989	10,889	989	357	1	1/11878	1/357
1990	10,797	1,054	322	1	1/11851	1/322
1991	10,667	1,137	303	1	1/11804	1/303
1992	9,534	1,098	305	—	—	—
1993	9,864	1,250	339	9	1/1234	1/37
1994	5,257	796	230	4	1/1513	1/57

Table 2 Summary of Obstetric History of 13 Advanced Abdominal Pregnancies

Case No.	Age (years)	Parity	Indications for previous operation, if any	Indications, time, place of earlier admission in index pregnancy
1	26	G3P0 +2 abortions	Nil	Admitted for abdominal pains in first trimester in a district hospital (Bekwai)
2	20	G1P0+0	Nil	Nil
3	33	G5P4AA	Nil	Vaginal bleeding in third trimester in a district hospital (Mampong)
4	33	G2P1D, 8 years of infertility	Nil	Nil
5	28	G1P0	Nil	Admitted in late third trimester in hospital (UST hospital)
6	35	G6P4AA +1 Ectopic	Ruptured ectopic gestation	Recurrent severe abdominal pains in second trimester in KATH
7	38	G4P2 1D +1 ectopic	Ruptured ectopic gestation	Nil
8	42	G6P5 4A 1D	C/S	Nil
9	27	G4P3 2D 1A	C/S	Nil
10	32	G2P1A	—	Nil
11	22	G6P2A +3TOP	Nil	Nil
12	30	G5P2 +2TOP	Nil	Admitted twice for abdominal pains in hospital (Obuasi)
13	29	G4P3A	Nil	Nil

G = Gravida P = Parity A = Alive
TOP = Termination of pregnancy
UST = University of Science and Technology

AA = All Alive D = Dead
C/S = Caesarean section

Table 3 Summary of Clinical Signs and Diagnostic Findings of 13 Advanced Abdominal Pregnancies

Case No.	Gestation at presentation		Fetal presentation	Clinical suspicion	Diagnostic aids	
	History	Fundal height			Ultrasound(US)	X-Ray/syntocinon
1	10 months	34cm	Transverse lie	No	First scan diagnosed fibroid in pregnancy. Repeat scan – abdominal pregnancy	Syntocinon Induction
2	9 months	34cm	Cephalic	No	US not performed	—
3	9 months	36cm	Breech	No	Bizarre sonogram	—
4	9 months	34cm	Cephalic	Yes	Confirmed clinical diagnosis	—
5	9 months	36cm	Transverse	No	US not performed	Positive X-ray findings noted after operation
6	9 months	37cm	Transverse	Yes	Confirmed clinical diagnosis	Positive X-ray findings
7	9 months	34cm	Oblique lie	No	Wrongly diagnosed as fibroid	—
8	9 months	36cm	Breech	Yes	Correctly diagnosed	—
9	9 months	34cm	Oblique lie	Yes	Correctly diagnosed	—
10	30 weeks by date	28cm	Cephalic	Yes	Correctly diagnosed	—
11	1 year	32cm	Oblique lie	No	Correctly diagnosed	—
12	28 weeks	27cm	Breech	No	Correctly diagnosed	—
13	10 months	33cm	Cephalic	Suspected after failure of syntocinon induction	US not performed	Failed syntocinon induction

Syntocinon = induction with syntocinon infusion

FD = Fetal death

X-Ray = abdominal X-ray

Operative Management

Lower vertical incisions were used for 11 cases and an upper abdominal incision used for case No. 6 (Figures 1 and 2). Repeat Pfannenstiel incision was used in one unsuspected case. The placental attachment and its management are presented in Table 5. At laparotomy, the placentas were found attached to pelvic organs in 7 cases. They were attached to abdominal structures including bowels, omentum and anterior abdominal wall, in addition to the pel-

vic structures in four cases. In two cases (Nos. 11 and 13), definite placenta attachment sites could not be determined. During laparotomy for case No. 11, the mummified fetus was found in a thickened chorioamniotic bag of membranes. There was a flattened island of placenta attached to the membranes at the postero-lateral position just adjacent to the posterior aspect of the uterus. The fetus, membranes and placenta were delivered en-bloc easily without bleeding from the uterus or nearby viscera.

The placenta was left in situ in 9 cases. It was removed through the performance of total left salpingectomy in one case and total abdominal hysterectomy and bilateral salpingectomy (TAH & BS) in another. In the case of the 13th patient, the pla-

centa came along during the extraction of the dead foetus. The only suspicious area, which could have been the site of attachment, was a raw area on the uterine fundus.

Table 4 **Indications for Admission, Compared with Final Pre-Operative Diagnosis**

Case No.	Reasons or diagnosis for referral and admission	Final pre-operative diagnosis
1	Presented at labour ward with labour pains. Spurious labour.	Abdominal pregnancy with fetal death
2	Presented at labour ward as spurious labour	Ruptured uterus Abdominal pregnancy
3	Referred as bleeding in third trimester	Placenta praevia
4	Admitted on suspicion of abdominal pregnancy. Fetal head palpated in pouch of Douglas.	Abdominal pregnancy
5	Referred as a result of transverse lie and gaseous distension in labour	Intestinal obstruction Transverse lie with IUD
6	Abdominal pain at term	Abdominal pregnancy
7	Painful fibroid in lower segment near term	Fibroid in lower segment
8	Referred and admitted as abdominal pains from suspected abdominal pregnancy	Abdominal pregnancy
9	Abdominal pains and oblique lie in third trimester	Abdominal pregnancy
10	APH	Abdominal pregnancy with fetal death
11	1 year amenorrhoea and undefined abdominal mass	Abdominal pregnancy with fetal death
12	Severe painful abdominal mass and bleeding per vaginam	Abdominal pregnancy with fetal death
13	Prolonged pregnancy with intrauterine fetal death	Failed syntocinon induction for fetal death Abdominal pregnancy

Table 5 Management and Intraoperative Findings

Case No.	Days spent in ward before operation	Site of placental attachment	Placenta removed	Loss	Blood Replaced
1	11 days	- anterior abdominal wall - small bowel - uterus	No	500ml	2 units
2	Same day	Left tube and omentum	Yes Left salpingectomy	500ml	1 unit
3	1 day	Uterus and broad ligament	Yes Total abdominal hysterectomy, bilateral salpingectomy	1.5 litres	2 unit
4	1 day	Broad ligament and posterior uterus	No	1.5 litres	4 units
5	3 days	Bladder, uterus, bowels	No	2.5 litres	2 units
6	6 days	Bowel and omentum	No	250ml	1 unit
7	12 days	Broad ligament bladder and uterus	No	1.0 litre	2 units
8	Same day	Bowels, uterus	No	500ml	1 unit
9	3 days	Posterior uterus and pouch of Douglas	No	1.0 litre	2 units
10	2 days	Bladder, uterus	No	500ml	2 units
11	3 days	Not definite	Yes	300ml	Nil
12	8 days	Uterus and pouch of Douglas and bowels	No	300ml	1 unit
13	2 days	Possibly fundus of uterus	Yes	500ml	1 unit

Table 6 Fetal and Maternal Outcomes

Case No.	Weight (kg)	Outcome for baby		Outcome for mother (mortality and morbidity)
		Sex	Condition of baby	
1	1.89	F	Macerated stillbirth (SB)	Discharged home satisfactorily 11 days postoperative. Reported later with discharging anterior abdominal wall sinus.
2	2.9	F	Fresh SB	Discharged home after 8 days
3	3.5	F	SB	Died 6 hours postoperatively from haemorrhage
4	2.45	M	Apgar 7& 9 at first and fifth minutes. Deformed right leg	Discharged home satisfactorily on the 10th postoperative day, later developed abscess that ruptured into rectum
5	4.2	M	Macerated SB	Died during operation from irreversible haemorrhagic shock
6	3.0	F	Apgar 6 & 8 at first and fifth minutes. Alive and well to date.	Discharged home well 14 days postoperative. Recurrent abdominal pains
7	2.2	F	Apgar 7 & 9 at first & fifth minutes. Alive and well to date.	Discharged home satisfactorily on the 10th postoperative day. Had pelvic haematoma/abscess for over 6 months
8	3.6	F	Apgar 4 & 2. Died three hours later. Pressure deformities of head and limbs.	Discharged home after 3 weeks. Lost to follow-up
9	2.05	F	Apgar 8 & 9. Alive and well to date.	Discharged home well 10 days after operation. Recurrent colic abdominal pains.
10	0.52	—	SB	Discharged 14 days after operation. Recurrent abdominal pains.
11	1.7	F	Mummified	Discharged home 8 days after operation. No significant morbidity reported.
12	0.6	M	SB	Discharged home 14 days after operation. Recurrent abdominal pains.
13	2.9	M	SB. No deformity	Discharged 10 days after operation. Satisfactory postoperative condition

Outcomes of Management

The maternal and perinatal morbidity and mortality are presented in Table 6. Eight of the babies were stillborn. One of the five live births died 6 hours after delivery. This baby had pressure deformities of the head and limbs. Of the four surviving babies, one had a deformed right leg. Perinatal fatality

rate was 69.6%. Nine of the babies weighed 2.0kg or more, two weighed nearly 2.0kg and two a little above 500g. The female/male ratio was 2:1. The sex of the tenth case, incidentally the smallest in the series, was not recorded.

Maternal mortality occurred in two cases giving a case fatality rate of 15.3%. Haemorrhage was the

cause of death in the two cases. The first death occurred because of lack of blood to correct the haemorrhagic shock. Abdominal hysterectomy and bilateral salpingectomy had been performed to remove the placenta. The second death case already had haemoperitoneum on opening up the abdomen. Securing haemostasis from the bleeding placental bed was difficult.

Postoperative duration of stay on the wards ranged between 8 and 14 days. The shortest was for the patient who successfully had the placenta removed. Among patients with the placenta left in situ, one still had a chronic discharging sinus one year after operation, two had to be re-admitted for recurrent severe abdominal pains. One developed pelvic abscess, which ruptured into the rectum, after which the patient became well, and one developed pelvic haematoma, which had to be drained percutaneously under ultrasound guidance on two occasions. Of the last seven cases seen, three still had the placental mass palpable in the lower abdomen 15, 14 and 3 months after operation respectively. None of the 13 cases required repeat laparotomy. Three of them were seen in 1997. They were all doing well and had put on weight.

Discussion

Abdominal pregnancy is a disease with higher frequency in areas that are socio-economically disadvantaged and in places with higher rates of pelvic infection.^{3,4,5} The incidence of advanced abdominal pregnancy in this report is higher than those reported from Harare, Zimbabwe, and Tanzania,^{3,6} but closer to that observed in Zaria, Nigeria.⁷ The incidence here is very much lower than that reported in the rural areas of Papua, New Guinea, where poor utilisation of medical care by pregnant women resulted in unrecognised early ectopic pregnancies.⁸

Association of advanced abdominal pregnancy with subfertility following tubal damage from infection was observed in the study of Hallact.⁵ He also found the average maternal age of cases to be 33 years and average parity to be less than 1. White³ and Mbura et al⁶ also found infertility of more than 4 years duration between the last delivery and occurrence of advanced abdominal pregnancy. The high average maternal age of 30.4 years recorded in this survey, together with low average parity of 1.9, is also suggestive of reduced fertility

in the cases presented. Indeed, two patients had previously had ectopic pregnancies. Only one patient, however, reported having been treated for infertility.

There was a marked increase in the diagnosis of AAP in Komfo Anokye Teaching Hospital (KATH) during the study period, when compared with previous years. This increase may be attributed to the availability of ultrasound services and the increasing awareness of these services by district health personnel, who refer difficult antenatal cases for better investigations at the teaching hospital. Introduction of expert ultrasonography services in a nearby hospital in Ghana (Korle-bu Teaching Hospital) had in a similar fashion, also significantly increased the diagnosis of unruptured ectopic gestation in that hospital.⁹

Advanced abdominal pregnancies are believed to be a sequelae of missed ruptured ectopic gestation or tubal abortions.^{10,11} Often, the only evidence to suggest the displacement of a partially implanted or unimplanted ovum to an ectopic site (tubal accident) is a history of severe abdominal pains and vaginal bleeding in early pregnancy.⁴ Two of the patients had such histories. In both cases, even though they were admitted into district hospitals, the diagnoses were missed. Abdominal pregnancy has no classic symptoms. Variable complaints are presented. Unexplained abdominal pain was the most common presenting symptom other than amenorrhoea. This finding is similar to that observed in other studies.^{3,4,5} Painful fetal movement may be attributed to abnormal fetal location disturbing adjacent abdominal structures.⁶ It is noteworthy to report that nearly half of the patients had also noticed weight loss. The reasons for this striking feature remain obscure. Perhaps poor appetite, vomiting and mal-digestion, resulting from recurrent abdominal pain, partly accounted for this loss of weight.

The diagnosis of advanced extrauterine pregnancy depends on a high index of suspicion and keen assessment of many such diagnostic clues, none of which is completely conclusive. The high index of suspicion with sensitivity at nearly 70% is said to be the cornerstone to diagnosis.^{2,6} In this review, only five cases were suspected clinically before ultrasonography or surgery was undertaken. Published reports^{1,12} have also shown that less than 50% of abdominal pregnancies are anticipated. Persistent abnormal lie of the fetus and

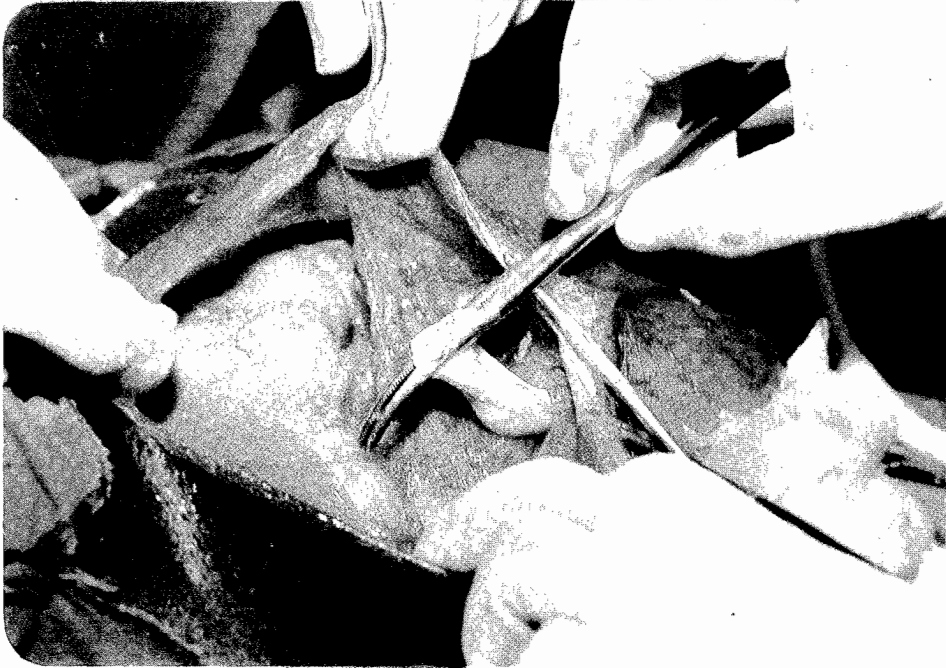


Figure 1 Exposed liver, transverse colon and omentum after fetus had been removed from the upper abdomen in Case 6. It also shows placenta arising from the lower abdominal structures

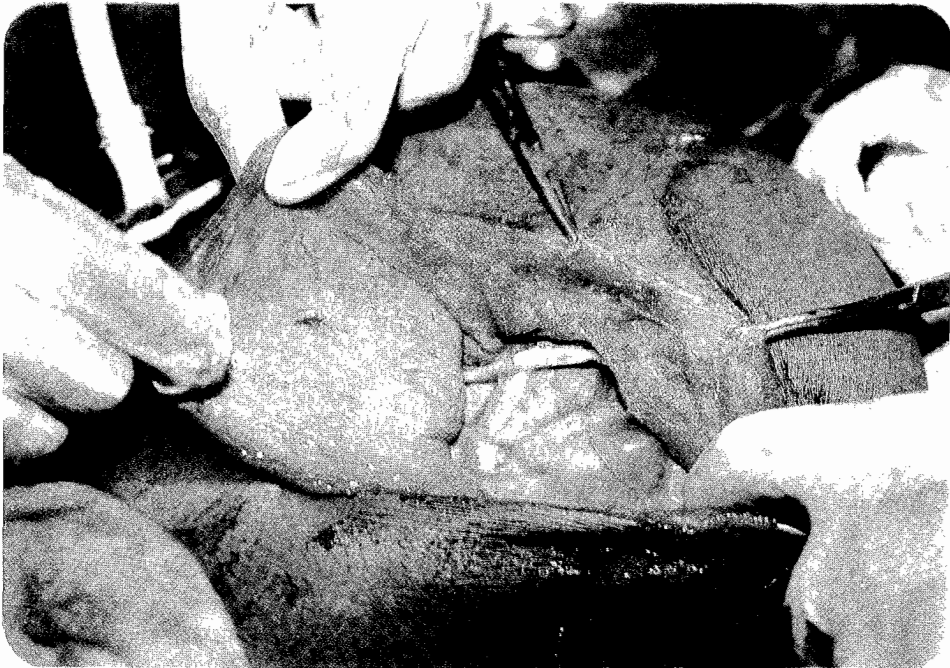


Figure 2 Placenta arising from lower abdominal structures in Case 6

difficult fetal palpation often called for ancillary investigations. In Komfo Anokye Teaching Hospital, this investigation is often abdominal ultrasonography. The most frequent and reliable finding during sonography was separation of uterus from the fetus, as was described by Stanley et al.¹³ The 80% sensitivity obtained with ultrasound in this study compares favourably with that found by Mburu and Mgaya.⁶ It also supports the recommendation that it is a rapid, non-invasive method that aids the diagnosis of abdominal pregnancy.^{1,4,13}

Surgical approach to anticipated abdominal pregnancy must be done with utmost care. Where the precise location of the fetus and placenta can be determined by ultrasound or MRI, a well placed incision that avoids the placenta is advised, as was done for case No. 6. (Figures 1 & 2). Such incisions can hopefully minimise explorative manipulations of tissues and organs and prevent damage to fragile vessels.¹

Management of the placenta remains the most controversial issue in the management of abdominal pregnancy. Most reports^{1,2,3} have emphasised that placental removal is associated with the lowest maternal morbidity, but the highest maternal mortality. Indeed, those patients who had their placentas removed were well enough to go home by the ninth postoperative day. Apart from the prolonged stay in the hospital, occurring in all the patients with placentas left in-situ, these patients had severe morbidity even several weeks after being discharged from the wards. Mburu et al also reported nearly 100% morbidity when the placentas were not removed.⁶ Other reports^{6,11} have claimed that complications arising from the placenta left in situ were the main causes of maternal mortality. This finding was not observed in this survey. Partial removal of the placenta when its blood supply sources cannot be ligated may result in massive haemorrhage. Haemorrhage following partial separation of placenta and also during hysterectomy to remove the attached placenta were the causes of maternal mortality in the two cases of death recorded. Blood loss during the removal of an attached placenta is reported to be twice that lost by leaving the placenta in situ.⁶ There is therefore the need to have available adequate blood for replacement losses before any removal of the placenta is attempted, i.e., if it should be done at all. Where the fetus is dead, Stewart² has advised a delay of

the operation for 6 weeks to allow for placental site to become less vascular. Prolonged death of the fetus in case numbers 11 and 13 made removal of their placentas complete and without much haemorrhage, thus supporting Stewart's suggestion.

Conclusion

Advanced abdominal pregnancy has no classic symptoms and pathognomonic features. However, recurrent abdominal pains and/or painful fetal movements in the advanced gravid patient with weight loss, a prior history of tubal pregnancy, easily palpable fetal parts, or difficulty in identifying the fetal presentation and abnormal fetal lie should raise the suspicion of advanced abdominal pregnancy. This should receive prompt expert ultrasound investigation.

The importance of adequate blood replacement during laparotomy for abdominal pregnancies cannot be overemphasised. Perseverance in the removal of the placentas of live and fresh still-born babies runs the risk of fatal maternal haemorrhage. Laparotomy for cases of AAP, therefore, should be undertaken cautiously with the aim of reducing maternal mortality.

Acknowledgements

The authors acknowledge deeply the immense contribution and advice received from Dr J.O. Djan during the preparation of the manuscripts. We are also grateful to Mr. K. Omane-Badu and Mr. A. Etta-Effa for their secretarial assistance.

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