

## ADVANCED ABDOMINAL PREGNANCY: THREE CASES WITH A REVIEW OF THE LITERATURE\*

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Secondary abdominal pregnancy is a rare, interesting, and often serious complication in obstetrics, with considerable hazards to both mother and baby. The incidence varies among different races and is probably influenced by socio-economic factors. It is relatively more common among the Bantu people of South Africa. In a three-year period, March 1967 to February 1970, of 5 843 total deliveries at Natalspruit Hospital, there were 3 cases of advanced extra-uterine pregnancy (1:1 947 6). Du Toit and De Villiers,<sup>17</sup> in South Africa, and Beacham *et al.*,<sup>3</sup> in the USA, report an incidence of 1:1 143 and 1:3 371 75 respectively. Fitzgerald and Goldthorp<sup>18</sup> noted a rising incidence in England in recent years, probably related to an increase in immigrants from countries where this problem is not uncommon. The perinatal mortality is extremely high, varying between 85 and 95%. Maternal mortality, however, is in the region of 10-15%.<sup>3</sup>

The purpose of this communication is to stress the importance of early and accurate diagnosis. Three different surgical techniques for managing the placenta will be presented, and each will be shown to have its own indication in a specific surgical circumstance.

### CASE REPORTS

#### Case 1

A 24-year-old Bantu patient (para 1, gravida 2) was admitted to this hospital on 24 April 1967 when 33 weeks pregnant, with the diagnosis of pyelonephritis of pregnancy; she was treated and discharged on 10 May 1967. (Previously she had delivered a full-term normal infant in 1961.) On 6 June 1967, when approximately 39 weeks pregnant, she was readmitted with vaginal bleeding and pains in the right iliac fossa. There had been slight vaginal bleeding for 3 days at home. A general examination was normal. There was no pallor, and the blood pressure was 110/70 mmHg. The maternal pulse was 80 beats/min. She had no oedema or albuminuria. Abdominal palpation disclosed an apparently full-term tender uterus, with the foetus lying obliquely. The foetal heart beat was present; the rate was 140 beats/min but irregular.

Accurate palpation was difficult due to some guarding of the abdominal muscles. A diagnosis of 'mixed type' accidental haemorrhage was made. Laparotomy was performed because it was considered that the foetus could be readily salvaged with a caesarean section procedure; the cervix was grossly unfavourable and displaced both upwards and anteriorly. Foetal distress was apparent in that the rate before surgery was 100 and still very irregular. At surgery, an unexpected advanced abdominal pregnancy was found, with the amniotic sac already having ruptured. The placenta was attached partially to the anterior abdominal wall and also to the left tube and ovary. The uterus was enlarged to the size of an 8-week pregnancy and the right ovary and tube were normal. It was decided to remove the placenta completely, after first

securing the left ovarian group of vessels between clamps. A left salpingectomy was also performed. The baby weighed 3 487 g (7 lb 11 oz). The blood loss during the operation was estimated to be 2 000 ml. A transfusion of a like amount of compatible blood was given. The patient was kept in hospital for 21 days without complications. On discharge, both mother and child were well.

#### Case 2

A 24-year-old Bantu patient (para 1, gravida 2) was admitted on 21 September 1969, with a history of labour pains for some hours. She had had one previous caesarean section in 1967 for cephalopelvic disproportion. By dates, the duration of the present pregnancy was 36 weeks. The general examination showed the patient to be healthy, with a blood pressure of 120/70 mmHg, and a pulse rate of 90/min. There was no pallor, oedema or albuminuria.

Abdominal examination showed the pregnancy to be at term. The uterus was extremely tender to touch with foetal parts very easily palpable above the umbilical level and very close to the anterior abdominal wall. It was also noticed that a breech occupied the lower pole of the uterus and the breech itself was observed at a level at least 6 cm above the plane of the brim. The foetal heart rate was 145/min with a regular rhythm. On vaginal examination the cervix was soft and uneffaced and the external os was closed. Two diagnoses were considered: ruptured uterus due to dehiscence of the previous caesarean scar or a possible advanced abdominal pregnancy.

At operation, through a subumbilical midline incision, a foetus was found with a larger than normal placenta attached to the abdominal wall, omentum, transverse colon, fundus of uterus and left ovary and tube. A live baby was delivered through a hole in the placenta and resuscitated. It weighed 3 629 g (8 lb). It was decided to leave the placenta *in situ* after securing haemostasis.

The membranes were peeled inwards from each lateral side in order to invert the placenta. In this way a 'tamponade' effect was created which enabled oozing from the placental side to be controlled. Two packs of Oxycel (Parke Davis) were left inside the inverted placental sac. The cord was ligated close to the placenta with chromic No. 2 catgut. Cephaloridine, 2 g, in 100 ml saline were left in the sac. The surplus spilled into the abdominal cavity. The abdomen was closed without drainage. Three litres of blood were given during the operation to replace the calculated loss. After 20 days of an uncomplicated puerperium, both mother and child were discharged in a satisfactory condition. Follow-up examination at 6 months showed that the placenta had been completely reabsorbed. The baby was still alive and had progressed well.

#### Case 3

A 28-year-old Bantu patient (para 4, gravida 5) was admitted on 28 January 1969 with a provisional diagnosis of antepartum haemorrhage. She had had one previous

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caesarean section in 1967 with a live baby. By dates, the pregnancy was 30 weeks. General examination showed the patient to be pale with a blood pressure of 110/80 mmHg, and a pulse rate of 100/min. There was albuminuria but no oedema. She had lost approximately 100 ml of blood *per vaginam* which was associated with moderate abdominal pains. Examination of the abdomen showed a pregnancy apparently at 32 weeks, with a very tender uterus. The foetal heart was not heard. On vaginal examination the cervix was soft, closed and displaced anterosuperiorly. A diagnosis of a 'mixed type' accidental haemorrhage was made and a laparotomy performed as it was considered impossible to carry out an amniotomy procedure through a grossly unfavourable cervix.

Surprisingly, an extra-uterine pregnancy was found at operation. A 30-week dead foetus was lying obliquely with the placenta laterally attached to the transverse colon, omentum, left tube, sigmoid and pouch of Douglas. The placenta had partially separated from its anatomical attachments. The abdominal cavity contained approximately 1000 ml of blood. An attempt to control the bleeding was made by suturing the placenta and its abovementioned attachments, but this was unsuccessful. It was then decided to ligate the left internal iliac artery. A transperitoneal approach was used. The sigmoid was mobilized medially. A small incision parallel to the vessel was made. The ureter was displaced laterally. Using No. 2 silk mounted on aneurysm needles, two ligatures were placed around the left internal iliac artery, the one approximately 1 cm from the origin and the other about 4 cm distal to the first. After division of the vessel, due to haematoma formation in the area, additional transfixing sutures were applied to both proximal and distal ends of the vessels. Ligature of the major vessel proved to be extremely helpful since immediate haemostasis was achieved.

The whole placenta was removed and several packs of Oxycel were left in the pouch of Douglas. Bleeding areas on the sigmoid colon ceased to bleed and oozing spots on the bowel were controlled with inverting Lembert sutures. Three litres of blood were given during the operation. After 28 days of puerperium complicated by a low-grade pyrexia, the patient was discharged in a satisfactory condition.

#### DISCUSSION

Abdominal pregnancy may be classified as primary or secondary. Intra and extra-uterine types may coexist.<sup>1, 20, 21, 24, 29, 32</sup> Another type of abdominal pregnancy—utero-abdominal pregnancy—was also described by Clark and Bennet.<sup>13</sup> It is a form of abdominal pregnancy with a portion of the foetus outside the uterus and the other portion in the uterine cavity. A fistulous communication between the foetal membranes and the endometrial cavity would permit the passage of amniotic fluid or the foetal appendage. The causes of such utero-abdominal pregnancy may be: attempted criminal abortion, defective scar, e.g. dehiscence of caesarean section or old interstitial ectopic scar, angular implantation of the ovum, or implantation of the ovum in a stump of a tube.

To classify an abdominal pregnancy as primary, the following criteria must be fulfilled: both tubes and ovaries must be normal, with no evidence of recent preg-

nancy; there should be complete absence of any evidence of uteroperitoneal fistula; and the presence of pregnancy should be related to the peritoneal surface and be young enough to eliminate the possibility of secondary implantation following a primary nidation in the tubes.<sup>9, 32, 35, 40, 41</sup>

Secondary abdominal pregnancy, the more common form, occurs when the fertilized ovum, which has begun to develop elsewhere, is finally reimplanted in the abdominal cavity. Although these are regarded as distinct pathological entities, it may be impossible to differentiate between them in an advanced case. Secondary abdominal pregnancy most commonly follows tubal abortion or rupture. The essential feature in the pathogenesis of this entity is the maintenance of adequate nutrition for the growing foetus. This is most commonly achieved by rupture of the ovum sac with maintenance of the original placental site in the tube and escape of the attached embryo into the peritoneal cavity. Within the abdominal cavity the only tissues available for implantation are the germinal epithelium of the ovary, the visceral and parietal peritoneum and, perhaps, patches of ectopic endometrium.<sup>9, 10</sup>

#### Diagnosis

*Signs and symptoms.* These will depend to a great extent on the duration of the pregnancy and on the anatomical area of the attachment of the placenta. Usually, if the placenta has not progressed beyond the first trimester, the clinical picture is suggestive of a ruptured tubal gestation. However, some cases have been reported where the placenta was attached to the meso-appendix, stimulating an appendicitis, and the diagnosis was only made at laparotomy.<sup>22</sup>

Placental attachment to the right lobe of the liver may occur; one case reported in the literature presented with confusing signs of dyspepsia, epigastric pains, shortness of breath and a very slow intra-abdominal haemorrhage. The close relationship to the gallbladder and duodenum explained the early confusing signs.<sup>36</sup> In another case, also with the placenta attached to the right lobe of the liver, the pregnancy proceeded to term. The mother died after severe haemorrhage and the baby also died 45 minutes after delivery.<sup>42</sup>

Grebolder<sup>25</sup> and Kuleshova<sup>30</sup> reported cases where the patients complained of discharge of pus and blood from the rectum, simulating a pelvic peritonitis or rectovaginal fistula. In those cases, the placenta was attached to the pouch of Douglas. Eventually, these patients delivered a foetus and placenta *per anus*.

Abdominal pregnancy following total abdominal hysterectomy has also been reported. A fistula between the vaginal vault and the abdominal cavity was responsible in one of the cases presented.<sup>43</sup>

In the period of viability, the patient will often give a history of abdominal pains, i.e. 'spurious labour' probably due to the rupture of the amniotic fluid into the abdominal cavity. This is a cardinal symptom which is more persistent than the usual discomforts of a normal pregnancy.<sup>12, 15, 44</sup> Vaginal spotting will occur in advanced stages.

The abdomen overlying the foetal area may be tender. Palpation may also disclose the foetal parts directly under the abdominal wall. A vaginal examination may show the foetus to be lying extremely low and easily palpable

through the posterior fornix. The actual uterus, enlarged usually to the size of an 8-week pregnancy, and displaced into the hollow of the sacrum, may be detected on either vaginal or rectal examination in this retroposed position. The uterus alternatively may occupy a markedly anteverted position with the cervix displaced anteriorly behind the symphysis.<sup>15</sup>

Some patients may also present a history of intestinal obstruction<sup>5,11</sup> or hypofibrinogenaemia.<sup>20</sup>

**Other tests.** A useful test is the injection of a test dose of oxytocin (2 IU in 10 ml of saline) intravenously. This causes a palpable hardening of a normal pregnant uterus, but not of an extra-uterine sac. Insertion of a uterine sound into the uterus is another procedure to positively measure its size and direction, though a very dangerous one in a soft uterus; this test is probably best confined to patients in whom the foetus is already dead, and where the diagnosis of extra-uterine pregnancy is fairly certain.<sup>3,9,21</sup>

**X-ray examination.** The positive sign of an extra-uterine pregnancy would be demonstration of the skeleton outside the uterine shadow, but the empty uterus is not usually visible and, therefore, the radiological diagnosis rests on a combination of several features; from a study of these, a high index of suspicion can be formed. The following signs are found to be most helpful:

1. Malposition of the foetus—the attitude is an unusual hyperflexed one.
2. Maternal shadows overlying the foetus; in a non-enlarged uterus, the maternal intestine may overlie the foetus.
3. Foetal parts overlies the maternal spine in a lateral view.
4. Absence of uterine wall.
5. A 'fixed lie'—common in an extra-uterine pregnancy.
6. Unusual clarity of the foetus due to the absence of the uterine wall.
7. Abnormal placental shadow.<sup>26</sup>

A hysterosalpingogram can also be carried out to show the small separate uterine cavity. For the most part it should be reserved for cases when the foetus is dead and the diagnosis fairly certain. Soft-tissue radiography and pelvic angiography can also be done to localize the placenta.<sup>12</sup>

**Ultrasonic echograms.** Ultrasound can be used with benefit for the diagnosis of abdominal pregnancy. Together with other tests, the interpretation of ultrasonic echograms proves useful in modern obstetrics.<sup>21</sup>

**Thermography.** This procedure is also very helpful in localizing the placenta. It perhaps finds its greatest use in the postoperative phase in cases where the placenta has been left *in situ*. Serial thermograms demonstrate the shrinking of the placental site. Estimation of hormonal levels may be instituted to determine the reduction of the activity of the placenta and cessation of active placental gonadotrophin function.<sup>4</sup>

The common mis-diagnoses reported in the world literature are transverse lie, antepartum haemorrhage, pregnancy with fibroids or ovarian tumour, ruptured uterus, contracted pelvis, postmaturity, multiple pregnancy, double uterus, retroverted uterus, sacculated uterus, ruptured

appendix in labour<sup>14</sup> and ruptured duodenal ulcer.<sup>30</sup>

The usual deformities of the foetus associated with abdominal pregnancy are deformed limbs, spina bifida, flattening of the head, deformity of the trunk, webbing of the neck, torticollis and facial asymmetry; one case with branchial cysts has been described.<sup>14,21</sup>

#### *Management of Advanced Abdominal Pregnancy*

A laparotomy should be done as soon as the diagnosis is made, but in some cases it may be justifiable to delay the operation in the hope of obtaining a viable baby, provided the X-ray examination excludes foetal abnormalities<sup>2</sup> and the mother and the foetus do not show any signs of distress. If placental attachment to the liver is diagnosed, then it is mandatory to interrupt the pregnancy as soon as possible, in order to avoid massive uncontrollable haemorrhage.

With regard to the various complications that may occur at a laparotomy, the following measures should be taken: an amount of at least 2 000 ml of compatible blood should be available; two support drip-sets are inserted before anaesthesia; a vascular surgeon should be on ready call and a complete surgical set, including arterial and aorta clamps should be available to cope with incidental bleeding from major vessels; and a paediatrician should be in theatre in order to take immediate care of a live infant.

#### *Management of the Placenta*

The method of dealing with the placenta is the main problem during the operation and there is still much debate regarding its management. The factors that determine the management of the placenta are inherent placental factors: location, blood supply, shape and state of vitality; and complications present at the time of the operation.<sup>27</sup> In a survey of the world literature, three different methods of dealing with the placenta become apparent: it can be removed at laparotomy; left *in situ* and allowed to absorb; or methotrexate therapy can be given.

**Removal at laparotomy.** The best results are obtained when the placenta is removed safely,<sup>46</sup> but the successes obtained should not encourage the surgeon to undertake such a dangerous procedure if any doubts exist as to the nature of its blood supply. The old adage, 'It is better to have a living patient with a placenta in her abdomen, than it is to have a dead one whose demise was caused by removal of the placenta', is still true.<sup>3</sup>

The worst cases to deal with are those in which the placenta is attached to some very vascular and not freely mobile viscus, the mesentery, or the posterior abdominal wall. If any doubt exists as to the safety of removal of the placenta, it is wiser to leave it undisturbed with the cord ligated close to the placenta, without any drainage or marsupialization.<sup>12</sup> Almost every maternal death reported in the world literature stems from the attempt at placental removal. However, there are some cases where the placenta is already spontaneously separated. In these cases, several surgical procedures have been reported depending on the nature of the anatomical area where the placenta was attached.

Bilateral internal iliac artery ligation is not new; more than 70 years ago Kelly,<sup>47</sup> in the USA, ligated both inter-

nal iliac and ovarian arteries in a total abdominal hysterectomy, to control severe bleeding in a patient with cervical cancer with extensive broad ligament involvement. In selected cases, ligation of that vessel on one or both sides may prove lifesaving.<sup>34,40</sup> A temporary taping of the abdominal aorta<sup>35</sup> or common iliac artery may also be done if surgical approach of the internal iliac is inaccessible due to the large implantation of the placenta. The temporary taping should not be left for longer than 1 hour.

Ligature of the internal iliac artery causes profound haemodynamic change. Burchell and Olson<sup>7</sup> performed serial aortograms in patients undergoing internal iliac ligation. They proved that collateral blood supply did not arise from the external iliac and superior and inferior gluteal arteries. Observation of their aortograms indicated that there were three principal collateral circulations after internal iliac ligation: lumbar-iliolumbar, middle sacral-lateral sacral and superior haemorrhoidal-middle haemorrhoidal vessels. In each instance, the direction of the blood flow was reversed in the distal artery after iliac ligation. However, the haemorrhoidal artery functioned as a collateral circulation only if the posterior division of the internal iliac was also ligated. Decreased pulse pressure, the basic haemostatic effect of internal iliac artery ligation, is due to the small diameter of the vessels in the three pairs of anastomoses.

*Placenta left in situ and untreated.* Most placentas left *in situ* undisturbed are usually absorbed without any bleeding or infection. However, the placenta may remain functional up to 50 days postoperatively.<sup>48</sup>

Friedman *et al.*<sup>20</sup> performed an emergency laparotomy in a case of 20 weeks' abdominal pregnancy. The placenta was left *in situ*. According to their results, serial estimation of the chorionic gonadotrophin seems to decrease progressively, with some variations, until it reaches the non-pregnant levels on the 13th to 14th day postoperatively.<sup>20,53</sup> Pregnanediol levels, too, decreased progressively but seem to have remained active longer than the chorionic gonadotrophin, reaching the non-pregnant levels at 60 days after the operation.<sup>53</sup> It should be noted that the continued excretion of urinary chorionic gonadotrophin, pregnanediol, oestrone and oestradiol indicates that the placenta alone was responsible for their production. The immediate reduction of oestriol and epioestriol excretion in the urine, after removal of the foetus, demonstrated the foetal origin of their precursors. Therefore, the foetal placental unit is essential for the normal metabolism of those hormones.<sup>20</sup>

Jackson<sup>30</sup> reported a case of choriocarcinoma, which developed in a placenta which was left *in situ*. He quoted Hertig as follows: 'The more pathologic the pregnancy, the more apt it is to give rise to true choriocarcinoma'.

*Methotrexate therapy.* The morbidity of the placenta when left *in situ* led some surgeons to utilize amethopterin;<sup>37</sup> they suggest the methotrexate would destroy active trophoblastic tissue. This results indirectly in a decreased placental vascularity and subsequently a reduction of complications in the postoperative period.<sup>37,53</sup>

Weinberg and Panerstein<sup>53</sup> stated that the mature placenta manifests little hyperplastic growth, and thus would be hardly affected by methotrexate. In fact, the early human placenta has much more ribonuclease and desoxyribonuclease activity than the mature one. Desoxyribonu-

clease activity decreases markedly towards the 40th week, and a placenta at term has no more hyperplastic growth. On the other hand, the placenta and the foetus seem to be very resistant to antimetabolites in the second and third trimester of pregnancy, and the methotrexate affects the extra-uterine placenta more than the intra-uterine placenta. Possibly the extra-uterine environment imposes a different growth potential upon the placenta. However, there are still multiple unknown aspects of the use of the methotrexate in abdominal pregnancy with a placenta left *in situ*, which means that this form of therapy is far from proved.<sup>53</sup>

Two different routes of treatment with this drug may be employed: oral treatment, or perfusion therapy. In oral treatment a dose of 20 mg is given daily for 5 days and further periods if necessary, depending on the correlated hormonal levels in the urine and the over-all blood state.

Recently, St Clair *et al.*<sup>48</sup> started using a perfusion of methotrexate diluted in 60 ml of isotonic saline solution, which was given into the umbilical vein of the cord, previously sutured to the parietal peritoneal wall and brought out through a small incision in the abdominal wall. The dosages were 25 mg on the first day and 15 mg on the 7th, 9th and 10th days postoperatively. Haematological values and liver functions should be determined to assess the toxicity of methotrexate. Through polythene catheters inserted into both umbilical arteries to give access to the placental vasculature, contrast dye is injected on the 1st, 9th and 21st days postoperatively. Serial placentograms are done to determine the size of the placenta. Longer retention of the dye in the placenta and absorption into the maternal circulation means that the placenta has started degenerating. Twenty-four-hour urine chorionic gonadotrophin titres are subsequently determined at intervals throughout the postoperative period. Further studies are necessary before its value can be determined.

### Complications

The main complications after a laparotomy with a placenta left in the abdomen are secondary haemorrhage, hypofibrinogenaemia, infection, intestinal obstruction or paralytic ileus, which usually occurs during the first or second week.

Hunter *et al.*<sup>28</sup> reported a case of an abdominal pregnancy followed by elimination of the placenta through the bladder. Elimination through the bowel with fistula formation was also reported.<sup>5</sup> This illustrates the depth to which syncytial cells will erode in an attempt to acquire an adequate blood supply. In those cases, a secondary laparotomy may be necessary.

After the death of the foetus, a number of changes take place in the sac and its contents. The amniotic fluid is absorbed and shrinking of the sac is noticed. The foetus becomes mummified or an adipoceros transformation occurs, or calcification or a true lithopaedion results. After some time these shrunken sacs may be present in the abdominal cavity without causing discomfort and they are, indeed, sometimes discovered as incidental findings at laparotomy for other pathology.<sup>12</sup> Cases have been reported with abdominal pregnancy retained up to 40 years.<sup>3</sup> The sac may also become infected and suppuration and soiling of the peritoneal cavity occurs. The abscess so formed may evacuate through the vagina,

rectum or through an abdominal wall fistula.

Suter and Wichser<sup>30</sup> estimated that one-quarter of extra-uterine pregnancies diagnosed after the 6th month will result in living babies. Bright *et al.*<sup>6</sup> estimated that the infant has about 25% chance of survival and a 10% chance of being normal. The reported incidence of massive deformity ranges from 37 to 75%.

#### Subsequent Neonatal Progress

The paediatric aspect of abdominal pregnancy and the factors influencing foetal survival are very important, and only few papers have devoted any attention to this problem. A surgical and mental follow-up should be considered.

Ware,<sup>52</sup> in a follow-up study of 5 babies, showed that all babies without deformities were mentally normal. Jarcho<sup>31</sup> also described gross deformities in an infant born after abdominal pregnancy. Following surgical correction the infant was reported to have progressed well.

Tan and Wee,<sup>31</sup> in a follow-up study of 5 infants, also had 4 normal neonates who made satisfactory progress. In one of their cases, with no deformity, the infant was markedly mentally retarded and was found spastic with microcephaly. The infant died at the age of 8 months.

Some deformities like talipes calcaneus valgus, webbing of the elbow and knee and talipes equinovarus were more or less corrected.

#### CONCLUSIONS

In every case a thorough history should be taken and the possibility of abdominal pregnancy should be kept in mind if certain suspicions are aroused. Normally, in the period of non-viability, the symptoms of abdominal pregnancy are similar to a ruptured tubal gestation, except in cases where the placenta is attached to the meso-appendix (simulating appendicitis), liver (simulating duodenal ulcer) and pouch of Douglas (simulating pelvic peritonitis).

The diagnosis of advanced abdominal pregnancy may be considered in underprivileged races if the grossly variable ectopic syndrome is looked for and a suggestive history obtained. More notice should be taken of any painful uterus in the second and third trimesters of pregnancy. The diagnosis of advanced extra-uterine pregnancy should always be borne in mind if the position of the foetus is very high or in any way grossly unusual. Normally, in such cases, the uterus is not readily palpable and the cervix is often displaced anterosuperiorly.

A good X-ray examination (and ultrasonic echograms or serial thermograms, if these are available) may be very helpful to confirm the diagnosis or to estimate pre-operatively the size of the placenta and its relation to the organs to which it is attached.

Surgery is the procedure of choice for the definitive treatment of this condition. A laparotomy should be done in order to deliver a live baby, or to control incidental bleeding with a dead foetus.

In some cases, and at any time of gestation, it may be advisable to terminate the pregnancy in order to avoid uncontrollable massive intra-abdominal haemorrhage, as when the placenta is attached to the liver.

At laparotomy, after the removal of the foetus, the placenta should be left undisturbed when it is attached to non-mobile organs or to the mesentery, or when any

doubts exist as to the nature of its blood supply. The cord should be ligated close to the placenta. The amniotic membranes sutured in a special way can be very helpful in controlling persistent bleeding of the placental tissues due to any accident during the operation or incidental bleeding due to partial separation of the placenta. In one of our cases, it was the key to the management. With an inversion of the amniotic membranes, the placenta was 'tamponaded' successfully, stopping the bleeding and avoiding further haemorrhage.

A ligation of the internal iliac artery and a suture of the serosa of the intestinal wall when damaged may also be used in a partial premature separation of the placenta.

If the placenta is attached to mobile organs or the abdominal wall (as in case 1) it may be removed in order to avoid a possible secondary haemorrhage, infection, intestinal obstruction, degeneration or perforation of any organ in the abdominal cavity. Antibiotics may be left prophylactically in the abdominal cavity. Cephaloridine is the drug of choice in this hospital, where septic complications are anticipated.

#### SUMMARY

Three cases of advanced abdominal pregnancy are presented. In two cases full-term live babies were delivered without any deformity, both being alive and mentally fit at the time of writing. In case 3, the foetus was already dead on admission.

In case 1 the placenta was completely removed. In case 2 the placenta was left *in situ* and incidental bleeding was controlled with an inversion of the amniotic membranes. In case 3 ligation of the internal iliac artery and suture of the serosa of the intestinal wall was the procedure utilized to control the bleeding and thus avoid further haemorrhage.

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