

PLACENTA ACCRETA

by

M. P. GOGOI,* M.B.B.S., D.G.O. (Cal.), M.R.C.O.G. (Lond.)

and

PURABI GOGOI,** M.B.B.S., D.R.C.O.G. (Lond.)

Normally, the decidua prevents the trophoblastic tissue from coming in direct contact with the uterine musculature. The placenta separates in the spongy layer of the decidua and the separation is easy and complete. However, on rare occasions the decidua, mainly the decidua spongiosa, is found either deficient or absent. Such deficiency can be partial or complete. The trophoblasts in these cases come in direct contact with the uterine musculature. The condition is then called placenta accreta. The placenta is deeply adherent to the uterine wall and normal separation of the placenta cannot occur. Placenta accreta is an important though a rare cause of retention of placenta.

Incidence: The incidence of placenta accreta quoted by different authors varies. Aaberg (1945) found one case in 1,900 deliveries, Irving and Hertig (1937) 1 in 1,956 deliveries, Cunningham (1942) 1 in 16,000 deliveries and Burke (1951) 1 in 5,332 deliveries. Burke also reported

its occurrence once in 178 attempted manual removals. James and Misch (1955) reviewed the subject of placenta praevia with accreta and found the total number of cases reported so far as 32 and added one of their own. After that three more cases have been reported by Millar (1959). In this hospital there have so far been five cases of placenta accreta in 11,230 deliveries in the last 5½ years, an incidence of 1 in 2,246. Three of these were cases of placenta praevia with accreta. The variation in the reported incidence may be due to several reasons. Those who report a higher incidence may include cases of simple adhesion also. Again, partial placenta accreta may be overlooked in some cases of manual removal of placenta which could have been detected if microscopic examination had been carried out. We do, at times, come across cases where manual removal is difficult and the placenta is removed in bits and pieces. These may very well be cases of morbid adhesion. Aaberg and Reid (1945) wrote that the cases who had delayed haemorrhage in the puerperium or were later on diagnosed as placental polyps were perhaps cases of placenta accreta. Kistner, *et al* (1952) pointed out that the slightly accretic placenta in praevia position

*Prof. of Obst. & Gynec. Medical College, Gauhati.

**Lately Resident Surgeon, Dept. of Obst. & Gynec. Medical College, Gauhati. Present address: General Hospital, Rochford, England.

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might be the cause of postpartum haemorrhage met with in cases of placenta praevia. We feel, however, that the actual incidence is higher than is usually reported.

Pathology: Placenta accreta is divided into three varieties. It is called *accreta* when the chorionic villi are in direct contact with uterine muscle wall but do not invade it. It is called *increta* when the villi invade the muscle to a variable distance, and *percreta*, when the whole thickness of the myometrium is invaded up to or beyond the peritoneal coat. The condition may be either complete or partial. The partial placenta accreta is commoner than the complete variety. Chatterjee (1963) found complete placenta accreta in 1 in 40,000 deliveries. Kaltreider (1945) did not find a single one in 177 cases. In none of our cases was it complete. Aaberg and Reid (1945) divided placenta accreta into three types: total, partial and focal. It is the partial and focal variety which may at times be overlooked and these two varieties are more dangerous as in these the bleeding may be severe, Kistner, *et al* (1952).

The microscopical findings are that the decidua, mainly the decidua spongiosa, is partially or completely absent at the site of placental adherence. In other areas also the decidua may be very thin to resist the trophoblastic invasion. Similar deficiency may be noticed in the decidua vera also. Novak and Woodruff (1962) stressed, on examining the decidua vera in all these cases, the frequent finding of old scars with or without implantation. The villi are seen to lie directly

in contact with the muscle fibres. In some areas, the villi are seen to penetrate into the uterine muscle. In placenta percreta these may be seen perforating through the serosal covering. Hyaline and granular degeneration around the villi and in the surrounding muscle fibres is also present. Fibrinoid degeneration was reported by Kistner *et al* (1952) and others. Round cell and plasma cell infiltration had been noticed in some of the reported cases. This indicates the presence of chronic infection which may be of aetiological significance.

Case Reports

Case I: Mrs. R. D., 27 years old, para 7-0 was admitted as an emergency on 28-12-65 at 32 weeks of pregnancy with history of vaginal bleeding since 6.30 a.m. that day. She had five full-term and two premature deliveries previously. In the 2nd and in the seventh delivery the babies were stillborn. She had postpartum haemorrhage in her last delivery. Manual removal of the placenta was not done. She had fever during the puerperium. Her menstrual cycles were 5/28-30 days, flow moderate. She did not have any antenatal care during this pregnancy.

On examination: Pallor present, pulse—84 per minute, regular, good volume. Blood pressure 100/70 mm. of Hg. Fundus—term pregnancy. Uterus rather firm to feel with marked tenderness all over on palpation. Presentation and position could not be definitely made out. Foetal heart sound were heard but were indistinct.

Investigations: Blood—Hb. 6.5 gm%, group—A, Rh—ve, blood fibrinogen level 400 mg. %, V.D.R.L. and Kahn—negative.

Provisional diagnosis of accidental haemorrhage was made. Examination under anaesthesia revealed a firm mass resembling placental tissue through the os which was one finger dilated. A caesarean section was decided upon. On opening the abdomen bluish discolouration was noticed at places in the uterus. There were some large distended veins over the lower uterine seg-

ment. In one spot in the midline a dark reddish area could be seen underlying the peritoneal covering. An upper segment caesarean section was done. The baby was asphyxiated and died soon after. The placenta, large and thin, occupying the whole of the lower uterine segment and also partly the upper uterine segment, did not separate spontaneously. An attempt was made to remove the placenta manually but no plane of cleavage was found between it and the uterine wall. Only one ragged portion of the placenta was manually separated which was followed by bleeding. The uterus did not contract or retract. The diagnosis of placenta praevia accreta was made and a subtotal hysterectomy was performed. She developed shock during operation but made a gradual recovery. Apart from slight pyrexia the post-operative period was uncomplicated and she was discharged on 15-1-66.

Pathological Report:

Description of specimen: The specimen consists of a recent postpartum uterus removed by subtotal hysterectomy, cut open by a vertical incision made in the anterior wall. The placenta is large and thin occupying the whole lower uterine and partly the upper uterine segment, both on the anterior and posterior walls. Some ragged portion of the placenta was found incompletely separated but rest of the placenta was found firmly adherent to the uterine wall. Haemorrhage was seen at one spot in the uterine wall in the upper segment. The uterine wall was quite thin, in places measuring only about one to two millimetres. **Histology:** In all the sections made from where the placenta was adherent, the decidua was deficient and the trophoblast was seen in direct contact with the muscle fibres. Hyaline and granular degeneration was seen around the villi. In some places fibrinous degeneration was also detected. No round cell and plasma cell infiltration was seen. The decidua vera was also either absent or deficient in some areas. The villi in places were seen penetrating the whole uterine wall. Dilated sinusoids and haemorrhages were also seen.

Case 2: Mrs. M. K., age 30 years, was admitted on 21-7-67 with the history of

retention of placenta following a spontaneous vaginal delivery at home six days ago at 36 weeks. She said the labour lasted about twelve hours but the placenta was not expelled. Her mother could bring out only a few pieces by introducing her hand. There was severe bleeding. She became unconscious and was then brought to the hospital.

She had five previous full-term deliveries at home and had antepartum haemorrhage in the 4th pregnancy. The baby died on the day of delivery. In her 6th pregnancy she aborted at 20 weeks. There was no fever following deliveries or abortion. Her menstrual cycles were 3-4/30 days.

General condition poor with marked pallor. Pulse—98 p.m., blood pressure 100/68 mm of Hg. Temp. 101'40 F. Heart and lungs, no abnormality detected. Fundus at the level of umbilicus. Tenderness was present in the lower abdomen. There was a dirty vaginal discharge. Vaginal examination: Os admitted one finger. Placenta could be felt through the os. On gentle exploration it appeared to be adherent. Investigation: Hb—20%; cervical swab culture showed *Staphylococcus pyogenus* and *E-Coli* sensitive to Chloromycetin. Following a course of Chloromycetin her temperature came down. Seven hundred and fifty ml. of blood was also transfused. Examination under anaesthesia revealed a morbidly adherent placenta. We decided to do a hysterectomy when her general condition improved which however remained the same, although the infection was controlled and some more blood was transfused. On 31-7-67 an examination under anaesthesia revealed a deeply adherent placenta in the upper uterine segment, but the lower part was found to be separated. The poor condition of the patient did not allow a hysterectomy, so we removed gently the separated portion of placenta in bits as far as possible and left the rest. There was some bleeding which stopped following injection of ergometrine and syntocinon in intravenous drip. Seven hundred and fifty ml. of blood was transfused. The patient had fever which subsided following a course of chloromycetin. A blood-stained discharge continued for some days. Uterus was found to be about

ten weeks size of pregnancy on 10-8-67. The patient insisted on early discharge from the hospital and she left on 11-8-67 against medical advice. Her haemoglobin was 25%. She reported once later and was doing well. The uterus was almost normal in size. There was no discharge. Her haemoglobin was 40%. She had not discharged any piece of placenta till then.

Case 3: Mrs. J. C., age 28 years, para 1-0 was admitted on 19-7-67 as an emergency with amenorrhoea of 34 weeks and severe painless vaginal bleeding from 18-7-67. She had three small bouts of painless bleeding at home during the previous 4 weeks. First pregnancy in 1963, was uncomplicated and the delivery at term was normal. She had puerperal pyrexia. Her menstrual cycles were 3-4/30 days.

General examination: General condition, fair, pallor present. B.P. 110/70 m.m. of Hg. Heart and lungs—no abnormality detected. The height of the fundus—34 weeks. Presentation breech, L.S.A., floating; F.H.S. 142 p.m.—regular. Provisional diagnosis: Ante-partum haemorrhage probably due to placenta praevia. An examination under anaesthesia revealed central placenta praevia.

Operation: A lower segment caesarean section was performed. After the baby was delivered the placenta did not separate. A manual separation was attempted but the placenta was partially adherent. We faced an awkward situation. The patient was young and had no son. The husband of the patient would not prefer a hysterectomy if it could be avoided and would rather like to have the conservative approach adopted if possible. We then decided to try a gentle manual separation of the placenta as far as possible in areas where it was not firmly adherent and to leave the rest of placenta in situ and follow a conservative course of treatment preparing ourselves at the same time to do a hysterectomy in case of severe haemorrhage occurring. The decision was rather an unorthodox one. Three-quarters of the placenta was separated and the rest was left in situ. The placental adhesion was not confined to the lower uterine segment. Bleeding was arrested by

hot packs and in two places we applied a couple of mattress sutures. A piece of the uterus was removed for histopathology. A syntocinon drip with 10 units in a pint of saline and 750 c.c. of blood were given. The patient developed shock towards the end of the operation but recovered with further resuscitative measures. She had temperature up to 104°F in the first five days of the post-operative period which responded to terramycin. She did not have any further haemorrhage and was discharged from hospital on 31-7-67. At the time of discharge her haemoglobin was 60%. The uterus was of about 14 weeks size of pregnancy. The baby (weight 5 lbs) died of massive pulmonary haemorrhage on the 4th day. On postnatal check-up six weeks later the uterus was found to be of about ten weeks size of pregnancy. There was no bleeding. She passed small pieces of placenta during this period.

Histopathology report shows deficiency of decidua in all the sections examined. The trophoblastic tissue is in direct contact with the muscle cells. There is no evidence of inflammation and degeneration can be seen around the villi.

Case 4. Mrs. B. D., age 35 years, was admitted as an emergency at 3 p.m. on 19-12-67 with the history of retention of placenta following spontaneous vaginal delivery at home at 36 weeks of pregnancy on 18-12-67 at 6 p.m. Labour started at 9 p.m. on 17-12-67. Attempts were made to deliver it by the attending nurse when there was severe haemorrhage. She had eight full-term vaginal deliveries previously. In the 7th and 8th deliveries the placentae were retained and were removed manually under general anaesthesia by a local doctor. She had postpartum haemorrhage on both occasions. There was no history of puerperal fever.

General condition was very poor. Pulse 100 p.m., blood pressure 90/64 mm. of Hg. The fundus was at the level of umbilicus. The uterus was tender. The cord was hanging outside the vulva. A part of the placenta was lying in the vagina but the major portion was inside the uterus. Slight vaginal bleeding was present.

Management: The patient was not found fit for any interference immediately. Blood transfusion and an intravenous saline drip with Noradrenaline was started. On 20-12-67 an examination under general anaesthesia revealed a part of the placenta and the cord lying in the vagina, but the major portion was still inside the uterus and adherent. The separated portion of the placenta was gently removed and it was decided to do conservative treatment. Bleeding was minimum. Recovery was slow. She had fever from 28-12-67. High vaginal swab showed growth of staphylococcus pyogenes and E. Coli. She responded to Reverine given intravenously. The patient passed bits of placenta during this period. On examination on 25-1-68 her uterus was of ten weeks pregnancy in size. There was slight vaginal discharge. Her haemoglobin was 42% but otherwise her condition had improved. She was discharged on 30-1-68.

Case 5. Mrs. A. D., age 20 years, was admitted as an emergency with the history of painless vaginal bleeding for three days on 27-12-67 at 28 weeks of pregnancy. She had not felt foetal movements and was having some pain in the abdomen from the previous day. She had four normal deliveries at home previously. She had no history of postpartum haemorrhage, retained placenta or puerperal fever. Her menstrual cycles were 4-6/28-30 days. Flow moderate. On examination: Pallor present, oedema nil, pulse—142 p.m. regular, blood pressure 100/60 m.m. of Hg.; temperature 99°F.; haemoglobin 45%. Urine-albumin nil. Heart and lungs—no abnormality detected. The height of the fundus was that of 30 weeks pregnancy. Presentation was vertex. Foetal heart sounds were absent. The uterus was very tender on palpation. A provisional diagnosis of placenta praevia was made but accidental haemorrhage could not be excluded. Blood transfusion was started immediately. An examination under anaesthesia revealed Type II posterior placenta praevia and caesarean section was performed. A stillborn premature male baby was delivered. The upper portion of the placenta separated spontaneously and when it was being removed by gentle traction on

the cord the part of the placenta in the lower segment was found to be adherent. A hysterectomy was performed. The patient was discharged from hospital on 31-1-68.

Pathological report: A postpartum uterus removed by total hysterectomy, cut open transversely in the lower uterine segment in the anterior wall. The placenta was morbidly adherent to the uterine wall in the lower segment. Attempts at separation gave rise to tearing of the placenta or the uterine wall itself. **Microscopic report:** The chorionic villi are seen to penetrate the uterine muscle wall and lie in direct contact with the muscle fibres. The decidua is absent in these areas. Hyaline degeneration is seen around the villi. No round cell or plasma cell infiltration is seen. **Diagnosis—**placenta accreta. Section from the upper uterine segment does not show any abnormality.

Discussion

The reason why the placenta should be morbidly adherent in some and not in all is not definitely known. The basic fact seems to be deficiency or absence of the decidua.

Previous trauma as vigorous curettage is attributed to be the cause of decidual deficiency. In the case reported by Shotton (1944) curettage was previously done for investigation of sterility. He even questioned the place of routine curettage for investigation of sterility. Similar history of previous curettage for incomplete abortion was found in the two cases reported by Koutsky (1958). History of endometrial trauma was not found in any of our cases. It is also probable that previous curettage was necessary, due to partial adherence of the placenta in cases of incomplete abortion. Placenta accreta has been reported as early as 10th week of pregnancy by Dyer *et al* (1954). Millar (1959) stated that the retention of

products of conception for a prolonged period in cases of missed abortion may be due to placenta accreta.

There is a reported higher incidence of previous manual removal of placenta in these cases. Dyer *et al* (1954) reported incidence of 22 per cent and 18 per cent by Millar (1959). One of our patients had two previous manual removals. We have all seen recurrence of retained placenta in some patients and in some in whom manual removal is found quite difficult. This may be due to focal areas of placental adherence itself. At the same time, however, one cannot completely rule out the possibility of manual removal as a cause of placenta accreta either by causing trauma or infection.

Previous uterine infection, puerperal, post-abortion or as a part of generalised infection of the genital tract, has been mentioned by many as another important cause. James and Misch (1955) had evidence of infection in their case. In the cases reported here there was history of puerperal pyrexia in one but no sign of infection could be found on microscopic examination. Millar (1959) ruled out infection as a cause in his series.

Previous caesarean section is also considered as a probable cause. Kistner, *et al* (1952) reported nine cases of placenta praevia accreta out of which five had previous caesarean sections done for various reasons. But in all the placenta was not attached over the scar. In one of Millar's (1959) cases the placenta was morbidly adherent both in the upper and lower uterine segment and to the scar.

Cases of concurrent placenta praevia and accreta are sometimes met with. Irving and Hertig (1937) reported an incidence of 15 per cent while Millar (1959) found it in 21.4% of his cases. Three out of five cases in this group were such cases, an incidence of 60 per cent. Kistner, *et al* (1952) state that the true incidence of placenta praevia accreta can be correctly determined by examination of a large number of hysterectomy specimens with the placenta in situ. Dyer *et al* (1954) reported two interesting cases of placenta praevia accreta where the adherence was only in those parts of placenta lying in the lower uterine segment. In one of our cases also this was noticed. Compared to the other parts of the endometrium the decidual reaction is normally poor in the lower uterine segment and hence there is a greater risk of placenta being accretic when it is situated there.

Frequent association of placenta membranacea with placenta accreta is rather significant. The reported incidence is 21.4 per cent in Millar's (1959) series and in 6 out of 86 cases reviewed by Irving and Hertig (1937). Millar (1959) stated that this association points to a decidual deficiency due to poor vascular supply as the cause of placenta accreta.

Other causes mentioned are previous radium implantation which may have been done for treatment of menorrhagia, and presence of fibroids (Koutsky, 1958). Taking all these facts into consideration one is rather inclined to think that primary decidual deficiency is an important cause of placenta accreta although one cannot exclude at the same time pre-

vious trauma, infection, manual removal etc. from the list of probable causes. Millar (1959) thought that this primary decidual deficiency may be hormonal in origin.

Placenta accreta is recognised only when one tries and fails to manually remove a retained placenta. Sometimes it is diagnosed during caesarean section as in three of our cases. In partial or focal variety parts of placenta may be removed during separation. Bits of adherent placenta thus left may give rise to postpartum haemorrhage later.

In complete variety of placenta accreta there is no bleeding, unless one tries to do a forcible manual separation. In practically all reported cases profuse bleeding has been met with whenever manual removal was tried.

Age and parity do not have any influence on the occurrence of placenta accreta. Three cases reported here occurred within thirty years of life. All five patients of ours were multiparous women. Koutsky (1958) referred to abdominal pain in the later weeks of pregnancy or excessive pain in the first stage of labour. One feature reported by Cuningham (1942) was also noticed in case Nos. 1 and 5. This is tenderness on palpation. Premature labour was found in 20% of cases by Kaltreider (1945). Three cases reported here also delivered prematurely, one at thirty-two weeks of pregnancy and the other two at thirty-four weeks and twenty-eight weeks respectively. However, placenta accreta is reported to be commoner in multiparae than in primigravidae. Three of our cases were of concurrent placenta praevia

accreta. The interesting case reported by Gemmell (1947) was also of this variety. Kistner, *et al* (1952) are of the opinion that focal placenta accreta may be found in a larger number of cases of placenta praevia. In the series reported by Aaberg and Reid (1945) 11 per cent of the placentae had focal accretic areas.

Cases are sometimes diagnosed during caesarean section. Wider use of caesarean section for placenta praevia may reveal more cases.

Perforation of the uterus and haemorrhage during attempts at manual removal is a frequent and grave complication. Haemorrhage is more common in the incomplete variety. Infection is a serious problem when it occurs in a patient who has already had considerable blood loss. This is one of the main disadvantages of conservative treatment. Cl. Welchii infection may also take place.

Spontaneous rupture of the uterus has also been reported. Millar (1959) found it in 7.1 per cent in his 71 cases. Single cases of placenta percreta causing uterine rupture have been described by Burke (1951), Schuyler (1952) and Stone *et al* (1954). A case of haemoperitoneum in a case of placenta percreta but without obvious uterine rupture was reported by Pettit and Mitchell (1949), the bleeding arising from a subserosal vein.

Uterine inversion is another likely complication. This may result from cord traction in a case of placenta accreta specially when the placenta is attached to the fundus. However, the incidence is not high as one would have normally expected. Kaltreider

(1945) found it in 4.1 per cent and Millar (1949) in 14.3 per cent respectively. Stone *et al* (1954) found it 10 out of 24 cases of inversion of uterus. Das (1940) found adherent placenta in 75 per cent of his cases of inversion of uterus.

Whenever placenta accreta is diagnosed it is best to desist from further attempts to do a manual removal and to do a hysterectomy. Proceeding further with manual removal may lead to perforation of the uterus, inversion and profuse bleeding. In Aaberg and Reid's (1945) series both the deaths occurred in cases where manual removal was done. The hysterectomy done usually is a subtotal one but when the placenta is adherent to the cervix a total hysterectomy is indicated.

Several authentic cases of conservative treatment have been reported. Gemmel (1947) reported a case of placenta praevia accreta where he did conservative treatment but he also marsupialized the uterus by stitching the edges of uterine incision to the rectus sheath. The patient not only made a good recovery but had a full-term delivery later. The disadvantages of conservative treatment are haemorrhage and infection. The haemorrhage may be recurrent, for which the uterus may sometimes have to be packed repeatedly, which increases the chances of infection. The placenta may get absorbed gradually or also may be expelled later. The patient has to be kept in hospital for a prolonged period and she suffers from chronic illhealth due to toxic absorption.

Out of the five cases reported here hysterectomy was done in two. But

one case (case 3) was treated in an unorthodox manner with partial removal of the placenta followed by conservative treatment. Separation was, however, done only in the areas where placental adhesion was absent or minimum. Although there was some haemorrhage the treatment was effective. The other two were treated conservatively with gentle removal of already separated portions and both survived. It appears that in special circumstances like unwillingness of the patient to have the uterus removed or in cases with poor general condition and infection (cases 2 and 4) conservative treatment may be adopted. The treatment adopted and the risks involved should be explained to the patient. Partial manual removal as done in case 3 is only possible when the placental adherence is incomplete and should not be attempted when it is not so. While attempting a partial removal one should not use force and should be prepared to do a hysterectomy in case of severe bleeding. However, its place as a form of treatment is doubtful as, apart from bleeding there are chances of perforation of the uterine wall.

Maternal morbidity and mortality is mainly due to haemorrhage, infection and major operative procedures undertaken in an already exsanguinated patient. Infection is a dreaded complication where conservative treatment is adopted. Irving and Hertig (1937) reported a maternal mortality of 5.5 per cent in their 18 cases. While reviewing 86 cases from the literature they found the maternal mortality as 56.4 per cent in cases where incomplete manual removal was followed by hysterectomy, but

whenever hysterectomy was performed immediately all the patients survived. Dyer *et al* (1954) reported a maternal mortality rate for hysterectomy as 7.1 per cent, and 25 per cent, for partial manual removal. Irving and Hertig (1937) found a mortality rate of 64.5 per cent of manual removal. Dorsett (1933) compared the results of immediate radical, delayed radical and conservative treatment in placenta accreta. The result where immediate radical treatment was done was best. In the case where it was conservative the patient survived after a stormy post-operative period, but the patient in whom delayed radical treatment was done died. Our results were, however, good even when hysterectomy was not performed. Immediate hysterectomy still appears to be the best treatment but the place of the less radical methods and of conservative treatment may be considered in special circumstances. Cunningham (1942) found the maternal mortality to be 70 per cent in patients treated by manual removal with or without uterine tamponade, 36 per cent in patients where vaginal hysterectomy was performed and 6 per cent where abdominal hysterectomy was performed—the overall mortality being 38 per cent. In the five cases reported here maternal mortality was nil.

Foetal prognosis should not be poor due to placental adherence alone. But premature labour or bleeding due to partial concurrent placenta praevia and accreta may have some adverse effect. In all our cases, however, the babies died after delivery and all were premature.

Millar (1959) reported good foetal prognosis.

Summary

Five cases of placenta accreta, out of which three were placenta praevia accreta, are reported and the various aspects of the subject of placenta accreta as a whole discussed.

It is a rare disease. Decidual deficiency in the lower uterine segment appears to be the chief cause of placenta praevia accreta. Possible causes are previous infection and trauma.

Diagnosis is made after failure of manual removal in a case of retained placenta or sometimes during caesarean section. More cases can probably be diagnosed on regularly doing histopathological examination of hysterectomy specimens with the placenta in situ.

Perforation of uterus, haemorrhage, shock, sepsis and inversion of the uterus are the main complications.

The best treatment is immediate hysterectomy although conservative treatment may be tried in cases where the patient is young and has not got any children.

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Figs. on Art Paper I and II