

# FULL TERM, UNRUPTURED, INTRA-TUBAL PREGNANCY

(Review of World Literature)

by

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Unruptured tubal term pregnancy has been the literary stepchild of ectopic pregnancy. Most of the textbooks mention about abdominal and ovarian pregnancy and also about intra-ligamentary pregnancy, but no mention is made of this condition except by Stoeckel who wrote a few lines about it.

## Historical

The first paper on full-term intra-tubal pregnancy was published by Hale in 1746. Since then about 84 cases are reported in different countries.

McElin, Randale (1951) and Frachtman (1953) have discussed this condition in great detail. A few cases are reported since then.

In eleven cases fetuses weighing 7 lbs. to 10 lbs. have been extracted from unruptured tubes. In two cases twins were obtained. On rare occasions, intra and extra-uterine pregnancies have occurred simultaneously. In one case, intra-tubal baby survived whereas intra-uterine baby died after birth.

Ectopic pregnancy by definition includes all cases of pregnancy outside the uterine cavity.

The incidence of this complication has been estimated at 1: 300 pregnan-

cies by Schumann. It is also suggested that 1 per cent of these go to term. But from the clinical data available, this condition does not seem to be that common.—Intratubal pregnancy without rupture at or near term with a fully developed foetus is, therefore, an obstetrical rarity.

Total listing of all the possible extra-uterine positions where nidation and development might occur would include the sites listed below:

1. Primary abdominal
2. Secondary abdominal
3. Ovario-abdominal
4. Tubo-ovarian
5. Tubo-abdominal
6. Intratubal
  - (a) Ampullary
  - (b) Isthmic
  - (c) Interstitial
7. Intra-ligamentous
  - (a) Anterior
  - (b) Posterior
8. Tubo-uterine
9. Pregnancy in a rudimentary or accessory uterine horn
10. Pregnancy occurring after subtotal hysterectomy
  - (a) in a cervical stump
  - (b) in a fallopian tube
11. Cervical

One case is reported as primary hepatic.

*Received for publication on 28-11-1969.*

It has been suggested by McElin that the following salient factors be established as necessary for the correct diagnosis of intratubal full-term, unruptured pregnancy.

- (1) That complete extirpation of the foetal sac and products of conception be achieved by salpingectomy
- (2) That there be no gross or microscopic evidence of tubal rupture
- (3) That ciliated columnar epithelium be demonstrated at some points in the inner lining of the sac, and,
- (4) That smooth muscle be found in the sac wall at multiple sites and at considerable distances from normal undilated tube.

But in practice, the fundamental concept is that of a foetus and placenta enclosed within the fallopian tube to such a degree that no other pelvic or intra-abdominal organ is involved in the formation of the sac and that salpingectomy alone is curative.

After surveying the literature we found 84 cases to which we added our own.

We have made every possible attempt to be thorough in this review but are well aware that cases of this condition have not been reported or that we have overlooked some reports.

These 85 cases have satisfied the criteria in the broad sense, though all the details we would like to have were not available. Many cases were excluded because they did not meet these minimal criteria, even though the titles of the articles suggested that

intratubal term pregnancies without rupture of the tube had occurred.

### *Clinical Features*

*Age:* The data was available in 56 patients.

TABLE I

Age	No. of patients
Menarche to 19 years	2
20 years to 29 years	20
30 years to 39 years	29
40 years and above	5

The youngest patient was 19 years old and the oldest 43 years. Average age was 30.6 years. It is more common in the 4th decade of life. Similar observation was made in intra-ligamentary pregnancy by Wolfe (1953).

### *Race*

Data is not available regarding this in the cases reviewed. But in Ware's (1948) review of abdominal pregnancy he found most of the advanced ectopic (abdominal) pregnancies had occurred in Negroes. This may be due to the fact that Negroes seek medical advice late.

### *Parity*

Most of the patients are relatively early in the parity. Quite a few patients had a history of infertility. Data was available in 52 cases.

TABLE II

Parity:	0	1	2	3	4	5	6	7+
No. of patients:	15	13	13	7	1	1	2	0

Average number of children was 1.55

### *Gravidity*

Data was available in 53 patients.

TABLE III

Gravidity:	1	2	3	4	5	6	7+
No. of patients:	14	13	15	6	0	2	3



### *Duration of Gestation*

Out of 85, 2 were 7 months pregnant, 2-7½ months, 2-8 months and the rest of the patients (79) were full-term gestations.

Data was available in 53 cases about the side of tubal pregnancy. In 24 cases the pregnancy was on the right side and the remaining were in the left tube. Thus, there is no significant difference in the side of the pregnancy.

### *Symptoms*

In the early months, a patient may have occasional low abdominal discomfort, vaginal spotting or discharge. It was also noted that she may lose weight in the earlier months of pregnancy. The lower abdominal discomfort may be persistent. She may have obstruction symptoms, urinary tract infection, or at times vomiting. In the majority of the patients these symptoms are not severe. Only in few cases the symptoms may be very severe. The presence of severe abdominal pain may suggest rupture of the tube or peritoneal irritation because of leaking tube.

### *Signs*

In the early pregnancy, uterus may be felt separately, but in later months the uterus cannot be felt separate from the tubal mass which feels like a single mass. As the pregnancy continues, it may simulate intra-uterine pregnancy, till she is near term. The pregnant mass can be moved upwards and downwards but not sideways. The foetal parts may be felt with ease. The typical sign of abdominal pregnancy that the foetal parts are very superficial is not present.

The cervix may be displaced.

A firm elastic band, the round ligament, may be felt going across the sac. In intra-uterine pregnancy the round ligament is not felt per abdomen.

The foetus may be lying at a higher level, and in one fixed position.

Spurious labour may ensue, but Braxton Hicks' contractions are not felt. The cervix is soft but closed and does not dilate.

Syntometrine, I.V. drip, brings about the contractions of the uterus in intra-uterine pregnancy, but no contractions are brought about in tubal pregnancy. Tocographic record also shows no changes in pressure.

### *Diagnosis*

Although the diagnosis cannot be differentiated from other types of advanced extra-uterine pregnancies, until laparotomy, it may be suspected in some cases. The following findings are suggestive of advanced extra-uterine pregnancy:

1. Persistent pain, bleeding or minor abdominal crisis in early pregnancy.
2. Palpation of uterus separate from the gestational sac. This sign is only helpful in early pregnancy.
3. Displacement of cervix; usually it is displaced to one side or at times just under the symphysis pubis, as in intra-ligamentary pregnancy.
4. High position of the foetal parts (more likely with abdominal pregnancy and persistent abnormal presentation).
5. X-ray:



- (i) Absence of uterine wall shadow
  - (ii) Small bowel sign. Loops of small bowel trapped between the sac and the sacrum. Normally, the intestines are displaced above and around the enlarged uterus and the mid-abdomen is free of shadows
  - (iii) Hysterogram: May be of some use, but it is only done if there is no infection and foetal death
  - (iv) Persistently same position of the foetus on repeated x-rays.
6. History of false labour with the absence of dilatation of the cervix, with unexplained intra-uterine death and subsequent prolonged retention of the foetus. It is suggested that if the labour does not start in about two months after foetal death, extra-uterine gestation should be suspected.
7. Unsuccessful attempts at induction of labour with oxytocic drugs.

Various differential diagnoses suggested were transverse lie, pregnancy with fibromyomata or ovarian cyst, breech presentation with contracted pelvis, ruptured uterus, post-maturity, twin pregnancy, obstructed labour, and placenta praevia.

Further points in favour of the diagnosis are: foetal parts are easily felt, foetal heart is loud and situated at a high place, foetus is not very active, the round ligament band is not felt in abdominal pregnancy. If the round ligament is felt going across

the gestational sac, intra-ligamentary pregnancy may be suspected.

At the time of laparotomy, in most of the cases, the position of the placenta decides the diagnosis between the intra-ligamentary or tubal pregnancy.

In intra-ligamentary pregnancy, the placenta is always above the foetus and hence care must be taken to make a lower incision, whereas in tubal pregnancy the placenta is always situated postero-inferior, near the most vascular area.

#### *Operation*

At the time of laparotomy, most of the surgeons thought that they were dealing with the "uterus" whereas in fact they were operating on the tube. This experience was shared by most of the operators.

The attachments of the enlarged tube by adhesions was noted by earlier writers. Friction between the serosal surface of the enlarging tube and adjacent organ was postulated as a cause, and Miller suggested that the adhesions might represent an attempt by nature to deliver additional blood to the structure.

In the intra-tubal pregnancy these adhesions are very thin and can be easily separated by finger dissection.

As the foetus and placenta is enclosed in an intact gestational sac, the removal is relatively easy and the foetus and placenta can be easily removed by salpingectomy alone, while in the case of pregnancy without a sac, the placenta may have to be left behind with attendant complications.

It is postulated that nidation of the embryo occurred in the isthmic portion of the tube, at or near its junc-



tion with the interstitial portion. This implantation and subsequent placental development occurred at a point along the line of attachment at the mesosalpinx.

Schumann. (1936) drew attention to the position of the placenta on the inferior aspect of the tube. He pointed out that the proximity to the blood supply and greater elasticity of the tube at this site were important factors in development of the pregnancy to an advanced state. There may be partial extension of the sac within the broad ligament, but the presence of smooth muscle there should be demonstrated.

The last maternal death was reported in 1937. Since 1937, twenty two cases of full-term unruptured tubal pregnancy are reported without any deaths. Out of 63 cases reported before 1937:

- (a) 2 cases were the post-mortem findings.
- (b) 40 patients having dead babies, were operated and six of them died, thus a mortality of 15%.
- (c) 15 patients having live babies were operated, 4 mothers died and the fate of 3 mothers was not known, thus a mortality of 33%.
- (d) 6 patients, fate of mother or baby was not known.

These latter favourable statistics are undoubtedly due to blood replacement and antibiotic therapy as well as improved operators.

#### *Foetal Morbidity and Mortality*

Out of 22 patients operated upon after 1937, 7 live babies were deli-

vered. The fate of the remaining 63 cases was as follows:

Baby and mother both alive	..	..	8
Baby died, mother alive	..	..	34
Baby died, mother died	..	..	6
Baby alive, mother died	..	..	4
Autopsy findings	..	..	2
Baby alive, mother?	..	..	3
Fate of baby and mother not known	..	..	6

The foetal mortality after 1937 was 72%.

Out of 63 patients only 15 live babies were obtained before 1937, a mortality rate of 76%.

In total 22 live babies were born. In fifteen, mother and baby both survived. In four, mother died but the baby survived. In 3, fate of mother not known but baby survived. All except two of these babies were born at term; out of the remaining two, one was born at 7 months gestation and the other 7½ months gestation.

#### *Morbidity*

The high foetal mortality rate has been associated with a corresponding incidence of foetal abnormality. Although figures are not available, between one quarter and one half of ectopic foetuses are said to be deformed. In a review of 41 cases by Suter & Wickser (quoted by Wolfe *et al*, 1953), they found reference to foetal development in 31 infants. Twelve or 38.7% of these were found to be deformed and 10 or 24.3% died within 8 days after birth.

#### *Subsequent pregnancies*

Several reports mentioned the occurrence of subsequent uneventful pregnancies. Notable among these are Osgood's case cited by Jarcho in which the mother gave birth to six children while still carrying her abdominal tumour.

I must emphasise a few points:

The medical records were not complete. In this rare kind of case every effort must be made to note all possible details in the case notes and publications.

Microscopic examination was not carried out in earlier reports and hence, some cases included in this review might have been intra-ligamentary.

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