

# Insights into abdominal pregnancy

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## Editor's note

*This article provided a great deal of valuable evidence that was not mentioned in the Wikipedia article on abdominal pregnancy, and the Wikipedia article has subsequently been expanded with text from this publication. However, because of this purpose, it has never been the aim of this article in itself to be a complete review of the subject, and many aspects of abdominal pregnancy are not included herein.*

*This article also provides an example of how to contribute to Wikimedia projects such as Wikipedia by means of academic publishing.*  
Mikael Häggström, 2 December 2014

## Introduction

While rare, abdominal pregnancies have a higher chance of maternal mortality, perinatal mortality and morbidity compared to normal and usual ectopic pregnancies, but on occasion a healthy viable infant can be delivered.<sup>[1]</sup>

Because tubal, ovarian and broad ligament pregnancies are as difficult to diagnose and treat as abdominal pregnancies, their exclusion from the most common definition of abdominal pregnancy has been debated.<sup>[2]</sup>

Others - in the minority - are of the view that abdominal pregnancy should be defined by a placenta implanted into the peritoneum.<sup>[3]</sup>

## Symptoms and signs

Abdominal pregnancy does not have any specific symptoms and signs so much so that in about half of advanced cases it is missed, only being discovered during surgery. Because of the "vague" yet serious nature of the symptoms, signs and results of medical tests patients with abdominal pregnancy will generally have surgery at some point.<sup>[4],[5],[6]</sup>

## Risk factors

Risk factors are similar to tubal pregnancy with sexually transmitted disease playing a role.<sup>[7]</sup> However about half of those with ectopic pregnancy have no

known risk factors - known risk factors include damage to the Fallopian tubes from previous surgery or from previous ectopic pregnancy and tobacco smoking.<sup>[8]</sup>

## Mechanism

Typically an abdominal pregnancy is a secondary implantation which means that it originated from a tubal (less common an ovarian) pregnancy and re-implanted.<sup>[9]</sup> Other mechanisms for secondary abdominal pregnancy include uterine rupture, rupture of a uterine rudimentary horn and fimbrial abortion.<sup>[1]</sup>

## Diagnosis

Suspicion of an abdominal pregnancy is raised when the baby's parts can be easily felt, or the lie is abnormal, the cervix is displaced, or there is failed induction of labor.<sup>[4]</sup> X-rays can be used to aid diagnosis.<sup>[9]</sup>



A 23 week abdominal pregnancy on ultrasound showing a normal fetus and amniotic fluid.

Image by Dahab AA, Aburass R, Shawkat W, Babgi R, Essa O, Mujallid RH.

To diagnose the rare primary abdominal pregnancy, Studdiford's 1942 criteria need to

be fulfilled: tubes and ovaries should be normal, there is no abnormal connection (fistula) between the uterus and the abdominal cavity, and the pregnancy is related solely to the peritoneal surface without signs that there was a tubal pregnancy first.<sup>[10]</sup> Studdiford's criteria were refined in 1968 by Friedrich and Rankin to include microscopic findings.<sup>[11]</sup> Keyhole (laparoscopic surgery) can also be used to diagnose abdominal pregnancy.<sup>[12]</sup>

## Differential diagnosis

Depending on gestational age the differential diagnoses for abdominal pregnancy include miscarriage, intra-uterine fetal death, placental abruption, an acute abdomen with an intra-uterine pregnancy and a fibroid uterus with an intra-uterine pregnancy.<sup>[6]</sup>

## Treatment



Abdominal pregnancy being delivered.

Image by Shafi SM, Malla MA, Salaam PA, Kirmani OS.

Ideally the management of abdominal pregnancy should be done by a team that has medical personnel from multiple specialties.<sup>[13]</sup>

Often, with advancement of the pregnancy the support for the fetus becomes compromised and the fetus dies.<sup>[14]</sup> A patient may carry a dead fetus but will not go into labor. Over time, the fetus calcifies and becomes a lithopedion.<sup>[15]</sup>

Babies of abdominal pregnancies are prone to birth defects due to compression in the absence of the uterine wall and the often reduced amount of amniotic fluid surrounding the unborn baby.<sup>[16]</sup>

Blood transfusion is frequent in the management of patients with this kind of pregnancy, with others even using tranexamic acid and recombinant factor VIIa, which both minimize blood loss.<sup>[4],[17]</sup>

Mifepristone has been used to promote placental regression.<sup>[18]</sup>

Complications of leaving the placenta can include residual bleeding, infection, bowel obstruction, pre-eclampsia (which may all necessitate further surgery)<sup>[19],[18]</sup> and failure to breast feed due to placental hormones.<sup>[20]</sup>

## Epidemiology

Less than 1% of ectopic pregnancies in the United States are abdominal or about 1 out of every 10,000 pregnancies.<sup>[21]</sup> A report from Nigeria places the frequency in that country at 34 per 100,000 deliveries and a report from Zimbabwe, 11 per 100,000 deliveries.<sup>[5],[22],[23]</sup> The maternal mortality rate is estimated to be about 5 per 1,000 cases, about seven times the rate for ectopics in general, and about 90 times the rate for a normal delivery (1987 US data).<sup>[21]</sup>

## History

Albucasis (936–1013), an Arab Muslim physician is credited with first recognizing abdominal pregnancy which was apparently unknown to Greek and Roman physicians and was not mentioned in the writings of Hippocrates; Jacopo Berengario da Carpi (1460–1530) the Italian physician is credited with the first detailed anatomical description of abdominal pregnancy.<sup>[24]</sup>

## Natural experiment

Because pregnancy is outside the uterus, abdominal pregnancy serves as a model of human male pregnancy or for females who lack a uterus, although such pregnancy would be dangerous.<sup>[25],[26]</sup> Abdominal pregnancy has served to further clarify the disease pre-eclampsia which was previously thought (1980's) to require a uterus for it to occur, however pre-eclampsia's occurrence in abdominal pregnancy (with the conceptus outside the uterus) helped throw light on pre-eclampsia's etiology.<sup>[27]</sup> The ratio of live males to females at birth (normal, 107 males to 100 females<sup>[28]</sup>) is apparently reduced with abdominal pregnancy to as low as 60 males to 100 females (as reported by Masukume) because males are more likely to die in harsh environments (for example in abdominal pregnancy) compared to females.<sup>[1]</sup>

Cases of combined simultaneous abdominal and intra-uterine pregnancy have been reported.<sup>[18],[29]</sup>

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## Further reading

The “Abdominal pregnancy” article on Wikipedia

## Competing interests

None declared.

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