

# Left Hematosalpinx Secondary to Right Fimbrial Ectopic Pregnancy: A Case Report

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## Abstract

Ectopic pregnancy develops when the blastocyst implants outside the endometrial cavity. Its most frequent location is fallopian tubes that account for 96% of all ectopic pregnancies, whereas 11% occur in the fimbrial end. Once the implantation of ectopic pregnancy has been attained, the villi rapidly invade the endosalpinx, and then it reaches the tubal wall and peritoneum. This penetration is accompanied by vascular proliferation and a peritubal hematoma or hematosalpinx that often affects the contralateral tubal portion. This is the clinical case report of 31 years old patient who reported to the emergency department with complaints of abdominal pain localized to the hypogastrium and mild vaginal bleeding. Her Beta HCG was 9462 mIU/mL. The current gestation's status was not known however, the patient gave a history of 7 weeks of amenorrhea. Endovaginal ultrasound was performed for high suspicion of ectopic pregnancy, findings of which were suggestive of left salpingitis. Exploratory laparotomy was performed which revealed a right ectopic pregnancy and left hematosalpinx. In this case report, hematosalpinx was observed to coexist with concurrent ectopic pregnancy. Unilateral salpingo-oophorectomy on the right side was performed as right ovarian parenchyma was compromised. However, in light of the patient's wishes for future pregnancy, hematosalpinx on the left side was successfully managed through the technique of puncture and drainage. The approach to the management of such cases must always be individualized and the patient's wish for future conception should be taken into consideration.

## Keywords

Ectopic pregnancy; hematosalpinx; fimbrial ectopic pregnancy.

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## Introduction

Ectopic pregnancy develops when the blastocyst implants outside the endometrial cavity. Its most frequent location is fallopian tubes that account for 96% of all ectopic pregnancies, whereas 11% occur in the fimbrial end. Recurrent ectopic pregnancy has been reported with an incidence of 6-16% in women with a previous history of ectopic pregnancy and may be associated with an increase in maternal morbidity and mortality. Hemorrhage caused by ectopic pregnancy in the first trimester accounts for 4 percent of all pregnancy-related deaths. If an ectopic pregnancy is not timely detected, the anatomy can be disrupted due to associated risk factors such as infection, and also due to subsequent surgical intervention. This anatomical disruption may cause ciliary damage in the fallopian tube. (**Table 1**)<sup>1,2</sup>

The pathophysiology has multiple predisposing factors, such as its topographic location. The history of chronic salpingitis is observed in around 90% of the cases, which corresponds to 6 times the risk of ectopic pregnancy compared to the general population. In one study, the relationship of ectopic pregnancy and adnexal abnormality was reported by endovaginal ultrasound, concluding an association in 95% of cases. Once the ectopic pregnancy is implanted, the villi rapidly invade the endosalpinx, reaching the tubal wall and the peritoneum. This penetration is accompanied by vascular proliferation and a peritubal hematoma or hematosalpinx that often affects the contralateral tubal portion and spreads to the distal end of the tube, between the wall and the serosa. Concurrent hematosalpinx and ectopic pregnancy should be excluded in patients presenting with an adnexal mass,<sup>3</sup> which is a clinical challenge when hematosalpinx coexists on the contralateral side of the ectopic pregnancy.<sup>4</sup> We report the case who was attended in a second-level hospital where she was subsequently managed.

## Clinical Case

A 31-year old patient, who went to the emergency room with a referral to the health center for abdominal pain located in the hypogastrium for last 1 day and scarce transvaginal bleeding of 15 days duration, denied any other symptoms, vital signs: Blood pressure of 100/ 60mmHg, Heart rate of 80 beats per minute and respiratory rate of 20 per minute, temperature 36°C, came with a beta fraction of human chorionic gonadotropin hormone which was reported in 9462miU/mL. According to her obstetric history, she had a history of previous cesarean section for cephalopelvic disproportion, with no apparent complications. The current gestation status was unknown to the patient, however, she gave a history of amenorrhea of 7 weeks. Endovaginal ultrasound was requested due to high suspicion of ectopic pregnancy, finding of which revealed free fluid in the pelvic cavity, 21mm endometrial thickening, the right adnexal region with probable ruptured ectopic pregnancy, and findings suggestive of left salpingitis.

Upon physical examination, she was found conscious, alert, dehydrated oral mucosa, ventilated lung fields; rhythmic heart sounds of good tone, and frequency. She perceived pain on palpation in the hypogastrium, a positive Von Blumberg's sign. Vaginal and bimanual examination revealed a uterine size of approximately 8x7cm, a closed posterior cervix, a bulged pouch of Douglas, an exploratory glove with traces of bleeding. Based on the aforementioned findings, a ruptured ectopic pregnancy was diagnosed and the emergency code is activated. The patient was hemodynamically stable but her presentation with an acute abdomen indicated to perform an exploratory laparotomy, which revealed hemoperitoneum of approximately 300ml. The right ovarian parenchyma was compromised, so a right salpingo-oophorectomy was performed, without complication (**Figure 1**). On further intra-operative exploration of the pelvis, a tortuous left adnexal lesion was observed, without any evidence of solid consistency therefore, these findings were indicative of left hematosalpinx. (**Figure 2**) In light of the patient's future fertility desires, hematosalpinx was conservatively managed through the technique of puncture and drainage. There were no complications associated with this procedure. The total blood loss observed was 400 ml. (**Table 3**)

The patient underwent a satisfactory recovery and was discharged after 48 hours of surgery. Follow-up pelvic ultrasound was performed, which reported no evidence of free fluid in the pelvic cavity, and the left adnexal region was found without any evidence of fluid collection. The histopathological report confirmed the ectopic pregnancy.

## Discussion

It is common to find hematosalpinx ipsilateral to ectopic pregnancy, however, the association between ectopic pregnancy and contralateral hematosalpinx is infrequent, and is usually related to assisted reproduction techniques. The literature reports the possibility of endovascular penetration by the villi and vascular proliferation, which contributes to the formation of a peritubal hematoma or hematosalpinx. There are reports of presentation of hematosalpinx in chronic ectopic pregnancies, documenting that if bleeding occurs within the uterine tube without rupture or in an abortive phase, a secondary hematosalpinx may occur or on certain occasions a pelvic hemocele may be formed where there is bleeding. This hemorrhage accumulates within the fallopian tube itself to form a hematosalpinx without communicating with the peritoneal cavity,<sup>5,6</sup> which corresponds to the findings in our patient. Ectopic pregnancy is a life-threatening pathology if it is not diagnosed at an early stage. Its etiology could be idiopathic. However, on many occasions, it is caused by tubal infections or motivated by other risk factors. The patient presenting with classic symptoms of ectopic pregnancy can be evaluated with work-up and evaluation tests to assist in reaching the diagnosis.<sup>7</sup> In 1983, a study reviewed the evaluation of hematosalpinx in ectopic pregnancy by ultrasound.<sup>8</sup> Another research study published in 1992 examined the sensitivity of transvaginal ultrasound for detecting hematosalpinx in ectopic pregnancy.<sup>9</sup> In our case, apart from other findings, salpingitis was revealed, with a classic image of incomplete septa, followed by surgical approach. It was not until the 1980s that pharmacological treatment based on methotrexate was introduced in suitable patients,<sup>10</sup> whereas current reports suggest its success rate of nearly 90%,<sup>11</sup> however, its use is not exempt from failure or subsequent complication with a hematosalpinx. Given the aforementioned clinical presentation, our patient was not managed with medical therapy, and right-sided salpingo-oophorectomy was preferred because of compromised ovarian parenchyma. Salpingectomy is another surgical procedure for managing hematosalpinx, which can be associated with intraoperative complications, and long-term consequences. The impact of salpingectomy on ovarian function has been debated.<sup>12</sup> In our case report, the management of hematosalpinx using puncture and drainage of hematosalpinx technique on the left side was given preference, considering the patient's wishes for future conception despite the future risk of recurrence of ectopic pregnancy. Also, there is uncertainty about achieving a successful conception, as there is a risk of proximal tubal occlusion post-drainage. The transvaginal approach to manage isolated hematosalpinx can be associated with complications such as hematoma formation and hemorrhage. Similarly, linear salpingostomy is also associated with many risks including the risk

of excessive bleeding. Our patient was managed through the puncture and drainage technique for managing hematosalpinx. The patient had an uneventful recovery after the procedure, and follow-up ultrasound assessment did not reveal any hematosalpinx or fluid collection. The decision for managing the hematosalpinx using puncture and drainage technique was considered in this particular case, as the patient's wish for future conception was taken into considerations.

## Conclusion

Concurrent hematosalpinx and ectopic pregnancy is a clinical challenge. In our patient, unilateral salpingo-oophorectomy on the right side was performed as right ovarian parenchyma was compromised. However, hematosalpinx on the left side was managed with the technique of puncture and drainage, in the light of our patient's wish for the future conception. Management of hematosalpinx through puncture and drainage technique is a simple intervention that is associated with low risk of complications compared to other techniques in such clinical scenarios. The approach to management must always be individualized while focusing on the patient's wish for future pregnancy.

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Table 1. Risk factors for ectopic pregnancy with %

Prior ectopic pregnancy	3.04%
Pelvic inflammatory disease	1.31%
Assisted reproduction techniques (IVF)	1.6%
Tubal surgery	3-30%
Other methods of assisted reproduction:	
-GnRH analogues	7.9%
-Clomiphene citrate	4.7%
-Letrozole	6%
Contraceptive methods:	
-Tubal Sterilization to 5 years depending on the technique used	1.7%
-Copper T intrauterine device	16.4%
-Levonorgestrel intrauterine system	1%
-Estrogen / progestin hormones	05.02%
Smoking	03.02%
Douching	3%
Age:	
15-19 years	12.5%
20-29 years	16.6%
30-39 years	25.3%
40-49 years	42.5%



**Figure 1.** Right tubal ectopic pregnancy



**Figure 2.** Left hematosalpinx



**Figure 3.** Hematosalpinx resolution with puncture and drainage