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Case Series

Obstetrics and Gynaecology Section

Non Tubal Ectopic Pregnancy

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ABSTRACT

Non-tubal ectopic pregnancies are risk factors for maternal death and require prompt diagnosis and treatment. However, there are no established guidelines for their treatment because their rarity and care is individualized. We retrospectively reviewed the medical records of non-tubal ectopic pregnancies at our institution between May 2009 and September 2020. Thirty-four relevant cases were identified, including 14 interstitial, seven cervical, six peritoneal, three caesarean scars, two ovarian, and two rudimentary horn pregnancies; 23 of the 34 cases were diagnosed before treatment using ultrasound or magnetic resonance imaging. All patients were examined before nine weeks of gestation, and 17 were examined for a positive pregnancy test without any symptoms. In conclusion, in our hospital, non-tubal ectopic pregnancies were identified early, resulting in successful treatment without serious complications.

Keywords: Interstitial pregnancy, Laparoscopy, Positive pregnancy test

INTRODUCTION

Non-tubal ectopic pregnancies require prompt diagnosis and treatment due to the risk of massive bleeding. However, since it is a rare condition that accounts for only 7-10% of ectopic pregnancies, diagnosis and treatment are not clearly defined and are handled on a case-by-case basis [1]. This report describes the clinical profiles and shares the experience in diagnosing and managing 34 cases of non-tubal ectopic pregnancies.

CASE SERIES

This single centre retrospective case series was conducted between May 2009 and September 2020. Informed consent was obtained from all the patients included in the study. This report was approved by the Clinical Research Committee of the Hospital.

The medical records of patients who were diagnosed with non-tubal ectopic pregnancy during the study period at the present hospital were retrospectively reviewed. Based on the site of implantation, the non-tubal ectopic pregnancies were classified as cervical, caesarean scar, interstitial, rudimentary horn, ovarian, or peritoneal.

Of the 18,424 deliveries during the evaluation period, 241 (0.18%) were from ectopic pregnancies. Thirty four cases were non-tubal ectopic pregnancies, with a tubal-ectopic ratio of 14.10%. These included 14 interstitial, seven cervical, six peritoneal, three caesarean scar, two ovarian, and two rudimentary horn pregnancies [Table/Fig-1]. The mean age of the participants was 34.8 (32.2-38.0) years. At the first visit, the mean gestation period was 6.9 (5.0-7.0) weeks, and the mean β-human Chorionic Gonadotropin (β-hCG) level was 15722.6 (2119.6-21186.7) mIU/mL. The symptoms on the first visit included a positive pregnancy reaction in 17 cases. There was a history of ectopic pregnancy in 10 of the 34 cases, and eight of them were repeat non-tubal ectopic pregnancies in the same four patients.

The diagnostic methods used included intraoperative, ultrasound, Magnetic Resonance Imaging (MRI), and pathological analysis. Thus, excluding the one pathological and 10 intraoperative diagnoses, 23 cases were diagnosed preoperatively or before treatment on ultrasound or MRI. While all the cervical and caesarean scar pregnancies were diagnosed before treatment, only eight of the 14 interstitial pregnancies were diagnosed preoperatively. In one case, a normal pregnancy was diagnosed by early screening laparoscopy, but it was rediagnosed as interstitial pregnancy by MRI at mid-term, and emergency surgery was performed. Peritoneal pregnancies were diagnosed before treatment in only one of six cases.

Parameters		Frequency (n)
Site	Interstitium	14
	Cervicalcanal	7
	Peritoneum	6
	Caesarean scar	3
	Ovarian	2
	Rudimentary horn	2
Initial symptoms	Positive pregnancy response	17
	Abdominal pain	4
	Irregular genital bleed	4
	Mid-treatment for non-pregnancy	4
	Amenorrhoea	2
	Combination of abdominal pain and irregular genital bleed	1
	Combination of positive pregnancy response and abdominal pain	1
	Mid-postpartum	1
Diagnostic method	Ultrasound	13
	MRI	3
	Combination of ultrasound and MRI	7
	Surgery	10
	Pathological	1

[Table/Fig-1]: Clinical parameters and diagnostics details of the 34 non-tubal ectopic pregnancies at a single centre.
MRI: Magnetic resonance imaging

Only four patients could be treated with Methotrexate (MTX) alone. The β-hCG levels in three patients were below 5000 mIU/mL. One patient with a β-hCG level of 5924 mIU/mL was treated with MTX alone because no foetal heartbeat was detected. Thirty patients required surgical procedures, including uterine content removal in six cases, uterine artery embolisation in one case, and surgery in 23 cases (open abdominal in six cases and laparoscopy in 17). All cases with no specific implantation site were indicated for surgery. In cases where the implantation site was determined before treatment,

Site of implantation	Interstitium	Cervical canal	Peritoneum	Caesarian scar	Ovary	Rudimentary horn	Total
Mean age (years)	33.92	38.57	34.5	36.66	31	30.5	34.8 (32.2-38)
Mean gestation age at first visit (weeks)	7.6	6	7.3	5.6	7	6.5	6.9 (5-7)
Pretreatment diagnosis (n)	9	7	1	3	2	1	23
Mean β-HCG at first visit (mIU/mL)	21105.3	7972.3	3497.9	7884.3	46847.2	32157.1	15722.6 (2119.6-211186.7)
Patients receiving blood transfusion (n)	3	0	0	0	0	0	3
Patients receiving MTX (n)	6	5	2	1	0	1	15
Patients undergoing surgery (n)	13	4	6	3	2	2	30

[Table/Fig-2]: Treatment details of 34 patients with non-tubal ectopic pregnancy.
HCG: Human chorionic gonadotropin; MTX: Methotrexate

surgery was performed if the β-hCG level was >5000 mIU/mL. Even in such cases, patients with interstitial, ovarian, and rudimentary horn pregnancies underwent surgery or uterine content removal. Emergency laparotomy was performed in two cases of interstitial pregnancies, which were initially diagnosed as normal pregnancies by screening laparoscopy or MRI [Table/Fig-2]. However, in the middle of the term, they were rediagnosed as interstitial pregnancies by MRI. These two patients had massive intraoperative haemorrhage (2480 g, 7855 g) and required blood transfusion.

DISCUSSION

Previous reports suggest that rapid diagnosis of non-tubal ectopic pregnancies is the key, and early diagnosis was also important in this study [2]. The frequency of non-tubal ectopic pregnancies in hospital was about the same as previously reported [1]. Ectopic pregnancies are increasingly being diagnosed at an early stage due to advances in ultrasound and MRI [2]. In the present study, 23 out of 34 pregnancies were diagnosed by ultrasound or MRI. Only 10 of the 34 patients had symptoms such as abdominal pain or irregular bleeding, but all 34 cases were assessed before nine weeks of pregnancy, and none were in serious condition. Early detection and treatment of non-tubal ectopic pregnancies before rupture are critical because rupture of the implantation site can lead to maternal death [3]. Early medical intervention before rupture of the implantation site is possible if the patients are examined early.

Interstitial, ovarian, caesarean scar and, peritoneal pregnancies tend to be more difficult to diagnose [4]. In the present study, interstitial and peritoneal pregnancies were difficult to diagnose preoperatively, and only eight of the 14 interstitial pregnancies were diagnosed before treatment. Furthermore, one of the eight cases were diagnosed as normal pregnancies by early screening laparoscopy, but at mid-term, they were rediagnosed as interstitial pregnancies. These cases involved massive bleeding and required emergency surgery. This is consistent with previous findings that interstitial pregnancy diagnosis is challenging and requires careful attention as 20-50% of these patients develops cornual rupture [5].

Of the six cases of peritoneal pregnancy, five could not be preoperatively diagnosed. Although ectopic pregnancy was diagnosed in all these cases, the implantation site was either not identified or misidentified as tubal. In cases where the implantation site was identified and removed by laparoscopy, there was no massive bleeding. While both interstitial and peritoneal pregnancies were difficult to diagnose, distinguishing them from a normal pregnancy was difficult in cases of interstitial pregnancies but relatively easier in cases of peritoneal pregnancies.

Ectopic pregnancies can be treated in three ways which is surgically, medically, or by adopting a wait-and-see approach [4]. In this study, patients were treated medically, surgically, or both. Surgical treatment was often of diagnostic significance with intra-abdominal observation. Therefore, in many interstitial pregnancies, the women were operated on even if the β-hCG levels were low and were treatable with MTX. Peritoneal and ovarian pregnancies are often not treated with MTX because it is not effective and may require secondary surgery [6].

CONCLUSION(S)

This case series demonstrated that early identification and treatment of non-tubal ectopic pregnancies can result in favourable outcomes. However, interstitial pregnancies require more attention since they are usually difficult to diagnose in early pregnancy, even with MRI, ultrasound, and screening laparoscopy.

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