Original Research Article

CLINICAL OUTCOMES OF PREGNANCY OF UNKNOWN LOCATION IN A TERTIARY CARE CENTRE: ROLE OF SERIAL B-HCG, TRANSVAGINAL SONOGRAPHY, AND CLINICAL ASSESSMENT

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ABSTRACT

Background: The global variability in the etiology, clinical presentation, complications, and therapeutic responsiveness inacute pancreatitis necessitates region-specific investigations. **Aim:** This study aimed to comprehensively assess the burden, causative factors, diagnostic findings, and complications among patients presenting with acute pancreatitis. **Materials and Methods:** This prospective, observational study involved 100 patients who fulfilled the predefined inclusion criteria and presented to a tertiary care teaching hospital in Lucknow city during 2024. Patient history was obtained, thorough physical examinations were conducted, and relevant investigations were performed. **Results:** The incidence of pancreatitis was observed to be approximately 1.98 per 1000 per year. 74% patients experienced pain predominantly in the epigastric region, with relief noted in most (73.5%) patients upon assuming a sitting-forward posture with knees flexed against the chest. Serum amylase levels were elevated in 90% patients, consistent with acute pancreatitis. Abdominal ultrasonography demonstrated a sensitivity of 80-90% in detecting acute pancreatitis. **Conclusion:** This study confirms that abdominal pain, predominantly epigastric, was the universal presenting symptom, often radiating to the back. Ultrasonography proved highly effective (80-90% sensitive) in diagnosing acute pancreatitis. Pseudocyst was the most frequently encountered complication, underscoring the need for its early identification and management.

INTRODUCTION

Pregnancy of Unknown Location (PUL) is defined as a positive pregnancy test without demonstrable intrauterine or ectopic pregnancy on transvaginal sonography (TVS).[1] The incidence of PUL varies between 8% and 31%, depending on the clinical setting and the quality of ultrasound imaging.[2] With the widespread use of reliable pregnancy tests, high-resolution TVS, and early pregnancy units, the diagnosis of PUL has become increasingly common. However, the prevalence is inversely related to imaging quality—better ultrasonography leads to earlier identification of ectopic pregnancies, thereby reducing the number of PUL cases.[1] Most centres aim to maintain a PUL rate below 10%, with higher rates often observed in assisted reproductive technology (ART) settings due to earlier detection. The diagnostic workup typically involves serial serum beta-human chorionic gonadotropin (β-hCG) measurements and repeat transvaginal sonography (TVS), requiring multiple visits or hospital admission until a definitive diagnosis is established.[3]

PUL can result in four outcomes: intrauterine pregnancy (viable or non-viable), ectopic pregnancy, failing pregnancy, or persistent PUL.[4] Serum β-hCG and TVS are the most reliable methods for early diagnosis, with the discriminatory zone for visualising a gestational sac commonly cited as ≥1500 IU/L.[5] Timely identification is essential, particularly to rule out ectopic pregnancy, which can lead to significant morbidity or mortality if untreated. Although up to 15% of ectopic pregnancies may resolve spontaneously, it is currently not possible to predict which will do so safely. Despite the clinical importance of PUL, published data on its outcomes in low-resource settings remain limited. The study aimed to identify the common outcomes of patients with PUL

admitted to a tertiary care teaching centre in Kerala, and to determine the factors associated with these outcomes.

MATERIALS AND METHODS

This hospital-based, prospective observational study was conducted in the Department of Obstetrics and Gynaecology at the Government Medical College, Thrissur, from May 1, 2023, to 30th April 2024. The study included women admitted with a preliminary diagnosis of Pregnancy of Unknown Location (PUL), defined as a positive pregnancy test without evidence of intrauterine or ectopic pregnancy on initial transvaginal ultrasound. Inclusion criteria consisted of all consenting patients who met the diagnostic criteria for PUL and were clinically stable at the time of admission. Patients with a confirmed intrauterine or ectopic pregnancy at presentation, or those who were hemodynamically unstable, were excluded.

A consecutive sampling technique was adopted, enrolling all eligible patients during the study period. Each participant underwent a detailed history and clinical examination, including evaluation of demographic factors, obstetric history, presenting symptoms, and relevant risk factors. Baseline serum β-hCG levels were measured at the time of admission and repeated after 48 hours. Transvaginal sonography was performed initially and repeated as clinically indicated. Patients were followed until a definitive outcome—viable intrauterine pregnancy, non-viable intrauterine pregnancy, ectopic pregnancy, failing pregnancy, or persistent PUL—was established.

Data were collected using a semi-structured proforma and supplemented with information from case sheets and hospital records. The collected data included socio-demographic details, clinical signs and symptoms, laboratory and ultrasound findings, and outcomes. All data were entered in Microsoft Excel and analyzed using SPSS version 20.0. Quantitative variables were expressed as means and standard deviations, while qualitative variables were summarized as percentages. Chi-square tests were used to analyze associations between categorical variables, and ANOVA was applied to compare continuous variables among outcome groups. Ethical clearance was obtained from the Institutional Research and Ethics Committee, and written informed consent was obtained from all participants prior to their participation.

RESULTS

A total of 105 women diagnosed with Pregnancy of Unknown Location (PUL) were included in the study. The most common outcome observed was ectopic pregnancy, reported in 43 patients (41%), followed by intrauterine pregnancy (IUP) in 34 patients (32.4%) and failing pregnancy in 28 patients (26.7%). Notably, none of the patients had a persistent PUL throughout the follow-up period.

Demographic and Clinical Characteristics

Table 1 summarizes the baseline characteristics of the study population. Table 2 presents a comparison of clinical variables and outcomes among patients with intrauterine pregnancy, ectopic pregnancy, and failing pregnancy.

The majority of women belonged to the 21–30 years age group (59%), followed by >30 years (28.6%) and <21 years (12.4%). While most IUPs occurred in the 21–30 years group, no statistically significant association was found between age and pregnancy outcome (p = 0.079). Most patients (66.7%) had irregular menstrual cycles, which was significantly associated with the outcome of PUL (p = 0.015). Among those with regular cycles, 46.8% resulted in IUP, while 50% of those with irregular cycles progressed to ectopic pregnancy.

Regarding marital duration, 71.4% had been married for over 12 months. There was a statistically significant association between marriage duration and outcome (p = 0.001); 58% of those married for <6 months developed IUP, while 48% married for >12 months had ectopic pregnancies.

Reproductive and Obstetric History

There was a significant relationship between gravidity and outcome (p < 0.001). In primigravida, 45% had IUP, while increased gravidity was associated with a higher incidence of ectopic pregnancy (e.g., 81.8% in G4). Similarly, parity showed a strong association with outcomes (p < 0.001); among nulliparous women, outcomes were almost equally split between IUP (40.4%) and ectopic (38.3%), whereas higher parity corresponded to a higher ectopic rate (e.g., 84.2% in P2).

Nearly 47% of patients had no live children, and 79% had no history of abortion. However, abortion history was significantly associated with outcomes (p < 0.001), with prior abortions increasing the likelihood of ectopic or failing pregnancies.

Surgical and Gynecological History

Only 6.7% had a previous ectopic pregnancy, and this variable did not show statistical significance with current outcomes (p = 0.215). Conversely, a history of abdominal surgery (present in 31.4% of patients) was significantly associated with outcome (p = 0.017). Among these, 81.8% of women with prior tubal surgery and 45.5% with prior caesarean section had ectopic pregnancies.

A history of infertility was noted in 15.2% of cases and showed a significant association with PUL outcome (p = 0.018). Of these, 7 developed ectopic pregnancies, and 8 had failing pregnancies. Among patients with PCOS, 54.6% had ectopic, and 45.5% had failing pregnancy. While treatment methods for infertility were not significantly associated (p = 0.255), those who underwent ovulation induction + IUI or IVF were more likely to have failing pregnancies.

Contraceptive Use and Other Factors

The use of oral contraceptive pills (OCP) and intrauterine contraceptive devices (IUCD) showed a highly significant association with PUL outcomes (p < 0.001). Among 27 OCP users, 66.7% resulted in IUP, while among 11 IUCD users, 54.5% ended in ectopic pregnancies.

A history of pelvic inflammatory disease (PID) was reported in 24.8% but did not reach statistical significance (p = 0.948). Likewise, 85.7% of women were not sterilized, but among those sterilized, 100% had ectopic pregnancy, although this was not statistically significant (p = 0.82).

Symptoms and Clinical Signs

The most common presenting symptom was abdominal pain (42.9%), followed by asymptomatic cases (41.9%). Patients presenting with pain were more likely to have ectopic pregnancies (57.8%) (p = 0.003). Among clinical signs, cervical motion tenderness was the most predictive of ectopic pregnancy (93.8%) (p < 0.001), while abdominal tenderness was also common in ectopic cases (71.4%).

Comorbidities and Laboratory Values

Nearly half (49.5%) of the patients had no comorbidities. However, among those with PCOD (17.1%) and thyroid disorders (10.5%), a significant association was found with PUL outcomes (p < 0.001). 67% of patients with PCOD and HTN had ectopic pregnancies, and all patients with Type 2 diabetes had failing pregnancies.

Haemoglobin level also correlated significantly with outcome (p < 0.001). Patients with Hb>11 g/dL had higher chances of IUP (46.3%), whereas low haemoglobin (<10 g/dL) was predominantly associated with ectopic pregnancy (83.3%).

Serum Beta-hCG and Follow-Up Outcome

On Day 1, 27.6% had β-hCG>3000 IU/L, while 45.7% had levels below the discriminatory zone (<1500 IU/L). There was a significant difference in outcomes based on initial hCG values (p = 0.023). Higher hCG (>2000 IU/L) was more commonly seen in ectopic pregnancies.

Ectopic Pregnancy Management

Among the 43 ectopic pregnancies, 60.5% were managed surgically, 34.9% received methotrexate, and only 4.7% were managed expectantly.

Table 1: Baseline Clinical and Demographic Characteristics of Patients with Pregnancy of Unknown Location (PUL)

Variable	N (%)
Outcome	
Intrauterine Pregnancy	34(32.4)
Ectopic Pregnancy	43(41)
Failing Pregnancy	28(26.7)
Persistent PUL	0
Age Group	
<21 years	13 (12.4)
21–30 years	62 (59)
>30 years	30 (28.6)
Duration of Marriage	
< 6 months	19 (18.1)
6–12 months	11 (10.5)
>12 months	75 (71.4)
Gravida	
Primi	40 (38.1)
G2	24 (22.9)
G3	24 (22.9)
G4	11 (10.5)
G5	6 (5.7)
Parity	
P0	47 (44.8)
P1	34 (32.4)
P2	19 (18.1)
P3	5 (4.8)
Live children	
L0	49 (46.7%)
L1	32 (30.5%)
L2	19 (18.1%)
L3	5 (4.8%)
Abortion	
A0	83 (79%)
A1	16 (15.2%)
A2	4 (3.8%)
A3	2 (1.9%)
Previous Ectopic	
Medically managed	3 (2.9%)
Surgical Mx	4 (3.8%)
Nil	98 (93.3%)
History of abdominal surgery	
Caesarean section	22 (21%)
Tubal surgery	11 (10.5%)

Nil	72 (68.6%)
History of Infertility	
Present and not treated	2 (1.9%)
Present and treated	14 (13.3%)
Nil	89 (84.8%)
History of Contraception	
OCP	27 (25.7%)
IUCD	11 (10.5%)
Nil	67 (63.8%)
History of PID	
PID	26 (24.8%)
Nil	79 (75.2%)
History of Sterilization	
Sterilised	15 (14.3%)
Not	90 (85.7%)
Amenorrhea Period	
<4 weeks	8 (7.6%)
4–5 weeks	24 (22.9%)
5–6 weeks	27 (25.7%)
6–7 weeks	22 (21%)
>7 weeks	24 (22.9%)
Main complaints	
Asymptomatic / ANC	44 (41.9%)
Abdominal Pain	45 (42.9%)
Bleeding PV	12 (11.4%)
Spotting PV	4 (3.8%)
Clinical Signs	
Bleeding PV	5 (4.8%)
Abdominal Tenderness	21 (20%)
Brownish Discharge	7 (6.7%)
Cervical Motion Tenderness	16 (15.2%)
Forniceal Tenderness	4 (3.8%)
No Sign	53 (50.5%)
Comorbidities	
T2DM	2 (1.9%)
HTN	15 (14.3%)
PCOD	18 (17.1%)
Epilepsy	5 (4.8%)
Thyroid disease	11 (10.5%)
Others	2 (1.9%)
Nil	52 (49.5%)
Duration of hospital stay	
3–4 days	3 (2.9%)
5–6 days	59 (56.2%)
7–12 days	23 (21.9%)
>12 days	20 (19%)
Beta HCG D1	
<500	11 (10.5%)
500–1000	21 (20%)
1000–1500	16 (15.2%)
1500–2000	11 (10.5%)
2000–3000	17 (16.2%)
>3000	29 (27.6%)

[PUL – Pregnancy of Unknown Location, G – Gravida, P – Parity, L – Live births, A – Abortions, Mx – Management, OCP – Oral Contraceptive Pills, IUCD – Intrauterine Contraceptive Device, PID – Pelvic Inflammatory Disease, PV – Per Vaginum, T2DM – Type 2 Diabetes Mellitus, HTN – Hypertension, PCOD – Polycystic Ovarian Disease, β-hCG – Beta Human Chorionic Gonadotropin]

Table 2: Comparison of Clinical Variables and Outcomes among Patients with Intrauterine Pregnancy, Ectopic Pregnancy, and Failing Pregnancy

Variable	Intrauterine Pregnancyn (%)(n = 34)	Ectopic Pregnancyn (%)(n = 43)	Failing Pregnancyn (%)(n = 28)	p-value
Age Group				0.079
<21 years	7 (53.8)	2 (15.4)	4 (30.8)	
21–30 years	22 (35.5)	24 (38.7)	16 (25.8)	
>30 years	5 (16.7)	17 (56.7)	8 (26.7)	
Menstrual Cycle				0.015
Regular	22 (46.8)	14 (29.8)	11 (23.4)	
Irregular	12 (20.7)	29 (50)	17 (29.3)	
Duration of Marriage				0.001
< 6 months	11 (57.9)	6 (31.6)	2 (10.5)	
6–12 months	8 (72.7)	1 (9.1)	2 (18.2)	

>12 months	15 (20)	36 (48)	24 (32)	
Gravida				< 0.001
Primi	18 (45)	15 (37.5)	7 (17.5)	
G2	16 (66.7)	3 (12.5)	5 (20.8)	
G3	0 (0)	15 (62.5)	9 (37.5)	
G4	0 (0)	9 (81.8)	2 (18.2)	
G5	0 (0)	1 (16.7)	5 (83.3)	
Parity				< 0.001
P0	19 (40.4)	18 (38.3)	10 (21.3)	
P1	15 (44.1)	5 (14.7)	14 (41.2)	
P2	0 (0)	16 (84.2)	3 (15.8)	
P3	0 (0)	4 (80)	1 (20)	
Abortion				<0.001
A0	34 (41%)	37 (44.6%)	12 (14.5%)	
A1	0 (0%)	4 (25%)	12 (75%)	
A2	0 (0%)	2 (50%)	2 (50%)	
A3	0 (0%)	0 (0%)	2 (100%)	
Previous Ectopic				0.215
Medically managed	0 (0%)	1 (33.3%)	2 (66.7%)	
Surgical Mx	0 (0%)	3 (75%)	1 (25%)	
Nil	34 (34.7%)	39 (39.8%)	25 (25.5%)	
History of abdominal surgery				0.017
Caesarean section	5 (22.7%)	10 (45.5%)	7 (31.8%)	
Tubal surgery	0 (0%)	9 (81.8%)	2 (18.2%)	
Nil	29 (40.3%)	24 (33.3%)	19 (26.4%)	
History of Infertility				0.018
Present and not treated	0 (0%)	0 (0%)	2 (100%)	
Present and treated	1 (7.1%)	7 (50%)	6 (42.9%)	
Nil	33 (37.1%)	36 (40.4%)	20 (22.5%)	
Cause of Infertility				0.351
Male factor	1 (33.3%)	1 (33.3%)	1 (33.3%)	
PCOS	0 (0%)	6 (54.6%)	5 (45.5%)	
Endometriosis	0 (0%)	0 (0%)	2 (100%)	
Treatment undergone				0.255
Ovulation Induction	1 (11.1%)	6 (66.7%)	2 (22.2%)	
OI + IUI	0 (0%)	1 (25%)	3 (75%)	
IVF	0 (0%)	0 (0%)	1 (100%)	
History of Contraception				<0.001
OCP	18 (66.7%)	5 (18.5%)	4 (14.8%)	
IUCD	0 (0%)	6 (54.5%)	5 (45.5%)	
Nil	16 (23.9%)	32 (47.8%)	19 (28.4%)	
History of PID				0.948
PID	9 (34.6%)	10 (38.5%)	7 (26.9%)	
Nil	25 (31.6%)	33 (41.8%)	21 (26.6%)	
History of Sterilisation				0.82
Sterilised	0 (0%)	15 (100%)	0 (0%)	
Not	34 (37.8%)	28 (31.1%)	28 (31.1%)	
Amenorrhea Period				<0.001
<4 weeks	7 (87.5%)	0 (0%)	1 (12.5%)	
4–5 weeks	8 (33.3%)	10 (41.7%)	6 (25%)	
5–6 weeks	14 (51.9%)	7 (25.9%)	6 (22.2%)	
6–7 weeks	5 (22.7%)	12 (54.5%)	5 (22.7%)	
>7 weeks	0 (0%)	14 (58.3%)	10 (41.7%)	
Main complaints				0.003
Asymptomatic / ANC	13 (29.5%)	12 (27.3%)	19 (43.2%)	
Abdominal Pain	14 (31.1%)	26 (57.8%)	5 (11.1%)	
Bleeding PV	7 (58.3%)	3 (25%)	2 (16.7%)	
Spotting PV	0 (0%)	2 (50%)	2 (50%)	
Clinical Signs				<0.001
Bleeding PV	0 (0%)	2 (40%)	3 (60%)	
Abdominal Tenderness	2 (9.5%)	15 (71.4%)	4 (19%)	
Brownish Discharge	3 (42.9%)	2 (28.6%)	2 (28.6%)	
Cervical Motion Tenderness	1 (6.3%)	15 (93.8%)	0 (0%)	
Forniceal Tenderness	2 (50%)	0 (0%)	2 (50%)	
No Sign	26 (49.1%)	10 (18.9%)	17 (32.1%)	
Comorbidities				<0.001
T2DM	0 (0%)	0 (0%)	2 (100%)	
HTN	0 (0%)	10 (66.7%)	5 (33.3%)	
PCOD	2 (11.1%)	12 (66.7%)	4 (22.2%)	
Epilepsy	0 (0%)	3 (60%)	2 (40%)	

Thyroid disease	3 (27.3%)	2 (18.2%)	6 (54.5%)	
Others	0 (0%)	2 (100%)	0 (0%)	
Nil	29 (55.8%)	14 (26.9%)	9 (17.3%)	
Haemoglobin (g/dl)				<0.001
< 10	0 (0%)	10 (83.3%)	2 (16.7%)	
10 – 11	3 (11.5%)	8 (30.8%)	15 (57.7%)	
> 11	31 (46.3%)	25 (37.3%)	11 (16.4%)	
Beta HCG Day 1				0.023
<500	5 (45.5%)	4 (36.4%)	2 (18.2%)	
500–1000	8 (38.1%)	4 (19%)	9 (42.9%)	
1000–1500	9 (56.3%)	3 (18.8%)	4 (25%)	
1500–2000	2 (18.2%)	5 (45.5%)	4 (36.4%)	
2000–3000	4 (23.5%)	12 (70.6%)	1 (5.9%)	
>3000	6 (20.7%)	15 (51.7%)	8 (27.6%)	

[ANC – Antenatal Care, OI – Ovulation Induction, IUI – Intrauterine Insemination, IVF – In Vitro Fertilization, OCP – Oral Contraceptive Pills, IUCD – Intrauterine Contraceptive Device, PID – Pelvic Inflammatory Disease, PV – Per Vaginum, LSCS – Lower Segment Caesarean Section, PPS – Postpartum Sterilization, Hb – Hemoglobin, β-hCG – Beta Human Chorionic Gonadotropin, PCOS – Polycystic Ovary Syndrome]

DISCUSSION

Pregnancy of Unknown Location (PUL) remains a diagnostic challenge in early pregnancy, often requiring a combination of transvaginal sonography (TVS) and serial serum β-hCG estimation for accurate classification and management.[6] In this study, 41% of PUL cases progressed to ectopic pregnancy, 32.4% to viable intrauterine pregnancy, and 26.7% to failing pregnancy, with no cases of persistent PUL. These findings are comparable to studies by Jaya et al.and ShaistaZubair et al. , both of which reported a significant proportion of ectopic pregnancies among PUL cases.[3,7] In contrast, the study by Shantishri and Kalpana et al.found a predominance of intrauterine pregnancies and fewer ectopic cases, possibly due to early diagnosis or different inclusion criteria.[2] The current study's high ectopic rate highlights the need for vigilant monitoring and follow-up of all PUL cases, especially considering the potential for life-threatening outcomes.

Several maternal characteristics were significantly associated with pregnancy outcomes. While age was not statistically significant, women over 30 years showed a higher tendency toward ectopic or failing pregnancy, aligning with studies by Sharma et al.and Aziz et al, which demonstrated increasing ectopic risk with advancing age.[8,9] Irregular menstrual cycles and longer marriage duration were significantly linked with ectopic outcomes (p = 0.015 and p = 0.001, respectively). Similarly, higher gravidity and parity correlated with an increased risk of ectopic pregnancy, as supported by Aziz et al. and Kirk E et al.[9,10] Previous history of abortion and abdominal surgery (especially tubal surgery) also showed strong associations with non-viable or ectopic outcomes, consistent with prior literature.[11-14] The significant correlation between infertility and ectopic pregnancy (p = 0.018), particularly among those with PCOS and ovulation induction, echoes the findings of Bouyer et al.[15]

Clinical presentation and laboratory parameters further aided prediction. Patients presenting with abdominal pain and cervical motion tenderness were more likely to develop ectopic pregnancy (p < 0.001), which reinforces previous observations from Igwegbe et al. and Peterson et al.[16,17] Higher rates of ectopic outcomes were also seen in women with comorbidities like PCOD, HTN, and thyroid dysfunction (p < 0.001). Notably, 54.2% of the study population had β-hCG levels above the discriminatory zone (>1500 IU/L), with ectopic pregnancy being the predominant outcome in this group, in line with the concept of the discriminatory zone described in multiple studies.[18,19] Among ectopic pregnancies, 60.5% required surgical intervention, underscoring the importance of early and accurate differentiation. These findings emphasize the value of structured follow-up using serial β-hCG and transvaginal sonography (TVS) for the timely and safe management of PUL.

CONCLUSION

Pregnancy of Unknown Location requires a structured diagnostic approach combining clinical assessment, serial β-hCG measurements, and transvaginal sonography for timely and accurate outcome determination. This study highlights that ectopic pregnancy is the most common outcome, emphasizing the need for vigilant follow-up. Identifying risk factors such as irregular menstrual cycles, infertility, and prior surgeries can guide early intervention and improve patient safety.

REFERENCES

1. Van Calster B, Bobdiwala S, Guha S, Van Hoorde K, Al-Memar M, Harvey R, Farren J, Kirk E, Condous G, Sur S, Stalder C. Managing pregnancy of unknown location based on initial serum progesterone and serial serum hCG levels: development and validation of a two-step triage protocol. Ultrasound in Obstetrics &Gynecology. 2016 Nov;48(5):642-9.
2. Sri AS, Kalpana P. Pregnancy of unknown location: outcome in a tertiary care teaching hospital. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2017 Jul 1;6(7):2787-91.
3. Jaya G, Sathiamma PK. Clinical Profile and Outcome of Pregnancy of Unknown Location in A Tertiary Care Centre. JMSCR. 2017;5(6):23930-934.

4. Banerjee S, Aslam N, Zosmer N, Woelfer B, Jurkovic D. The expectant management of women with early pregnancy of unknown location. Ultrasound in Obstetrics and Gynecology: The Official Journal of the International Society of Ultrasound in Obstetrics and Gynecology. 1999 Oct 1;14(4):231-6.

5. Barnhart KT, Simhan H, Kamelle SA. Diagnostic accuracy of ultrasound above and below the beta-hCG discriminatory zone. Obstetrics &Gynecology. 1999 Oct 1;94(4):583-7.

6. Nardo LG. The dilemma of recurrent ectopic pregnancy after tubal surgery and in-vitro fertilization. What to do?. Reproductive biomedicine online. 2005 Jan 1;10(3):300.

7. Shaista Z, Mary P, Nausheen N, et al. (2017) Outcome of Pregnancies of Unknown Location: An Observational StudyHighlighting the Association with Age and Clinical Features. SOJ GynecolObstetWomens Health 3(3):1-4. DOI: http://dx.doi.org/10.15226/2381-2915/3/3/00128

8. Sharma P, Shrestha B. Ectopic pregnancy in Nepalgunj Medical College. J Inst Med Nepal [Internet]. 2011 Aug. 31 [cited 2025 Jun. 7];33(2):4-15

9. Aziz S, Al Wafi B, Al Swadi H. Frequency of ectopic pregnancy in a medical centre, Kingdom of Saudi Arabia. JPMA. The Journal of the Pakistan Medical Association. 2011 Mar 1;61(3):221-4.

10. Kirk E, Condous G, Van Calster B, Van Huffel S, Timmerman D, Bourne T. Rationalizing the follow-up of pregnancies of unknown location. Human Reproduction. 2007 Jun 1;22(6):1744-50.

11. Ikeme AC, Ezegwui HU. Morbidity and mortality following tubal ectopic pregnancies in Enugu, Nigeria. Journal of obstetrics and gynaecology. 2005 Jan 1;25(6):596-8.

12. Anorlu RI, Oluwole A, Abudu OO, Adebajo S. Risk factors for ectopic pregnancy in Lagos, Nigeria. Actaobstetricia et gynecologicaScandinavica. 2005 Jan 1;84(2):184-8.

13. Do L, Shwayder JM. Ectopic Pregnancy: Pregnancy of Unknown Location (PUL). First-Trimester Ultrasound: A Comprehensive Guide. 2016:283-98.

14. Karki C, Karki A. Ectopic pregnancy and its effect on future fertility. Journal of South Asian Federation of Obstetrics and Gynaecology. 2011 Aug 1;1:35-9.

15. Bouyer J, Coste J, Shojaei T, Pouly JL, Fernandez H, Gerbaud L, Job-Spira N. Risk factors for ectopic pregnancy: a comprehensive analysis based on a large case-control, population-based study in France. American journal of epidemiology. 2003 Feb 1;157(3):185-94.

16. Igwegbe AO, Eleje GU, Okpala BC. An appraisal of the management of ectopic pregnancy in a Nigerian tertiary hospital. Annals of medical and health sciences research. 2013 Aug 22;3(2):166-70.

17. Peterson HB, Xia Z, Hughes JM, Wilcox LS, Tylor LR, Trussell J. The risk of ectopic pregnancy after tubal sterilization. New England Journal of Medicine. 1997 Mar 13;336(11):762-7.

18. Cacciatore B, Stenman UH, Ylostalo P. Diagnosis of ectopic pregnancy by vaginal ultrasonography in combination with a discriminatory serum hCG level of 1000 IU/1 (IRP). BJOG: An International Journal of Obstetrics & Gynaecology. 1990 Oct;97(10):904-8.

19. Ankum WM, Hajenius PJ, Schrevel LS, Van der Veen F. Management of suspected ectopic pregnancy. Impact of new diagnostic tools in 686 consecutive cases. The Journal of reproductive medicine. 1996 Oct 1;41(10):724-8.

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