Section: Obstetrics and Gynaecology

Original Research Article

INCIDENCE OF GESTATIONAL TROPHOBLASTIC NEOPLASIA IN VESICULAR MOLE AND ITS OUTCOME: A PROSPECTIVE OBSERVATIONAL STUDY AT A TERTIARY CARE CENTRE

R.G.Suresh Kumar[1], P.Lakshmi Kiran[1], V.Geeta Sree[2], Ram Chaitanya[3]

[1]Associate Professor, Department of Obstetrics and Gynaecology, Rangaraya Medical College & Government General Hospital, Kakinada, Andhra Pradesh, India
[2]Assistant Professor, Department of Obstetrics and Gynaecology, Rangaraya Medical College & Government General Hospital, Kakinada, Andhra Pradesh, India
[3]Postgraduate Resident, Department of Obstetrics and Gynaecology, Rangaraya Medical College & Government General Hospital, Kakinada, Andhra Pradesh, India

Received : 10/03/2026
Received in revised form : 10/05/2026
Accepted : 27/05/2026

Keywords:
Gestational trophoblastic disease, hydatidiform mole, gestational trophoblastic neoplasia, β-hCG, suction curettage, persistent trophoblastic disease.

Corresponding Author:
Dr. R.G.Suresh kumar,
Email: rngsuresh@gmail.com

DOI: 10.47009/jamp.2026.8.3.192

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2026; 8 (3); 1071-1073

ABSTRACT

Background: Gestational trophoblastic disease (GTD) encompasses a spectrum of placental disorders ranging from benign hydatidiform mole to malignant gestational trophoblastic neoplasia (GTN). Early recognition and systematic follow-up are the cornerstone of reducing associated morbidity and mortality. The objective is to determine the incidence of molar pregnancy and GTN, identify risk factors, describe clinical presentations, and evaluate treatment outcomes at a tertiary care centre. **Materials and Methods:** A prospective observational study of 40 confirmed molar pregnancy cases at Government General Hospital, Kakinada, from May 2023 to November 2024. All cases were evaluated for demographics, clinical presentation, β-hCG levels, ultrasonography, histopathology, treatment, and GTN progression. **Result:** Among 11,800 deliveries, 40 molar pregnancies were recorded (incidence 0.33%). GTN developed in 3 cases (7.5%). The predominant age group was 20–29 years (87.5%); complete mole comprised 90%. Amenorrhoea followed by bleeding per vaginum was the most common presentation (72.5%). USG diagnostic accuracy was 80%; all patients underwent suction curettage; 60% required blood transfusion. Mean β-hCG normalisation time was 4.225 ± 2.57 weeks. **Conclusion:** Early ultrasound surveillance reduces morbidity from molar pregnancy. Structured post-evacuation β-hCG monitoring enables timely detection of persistent GTD, rendering trophoblastic disease effectively curable.

INTRODUCTION

Gestational trophoblastic disease (GTD) refers to a heterogeneous group of interrelated lesions arising from abnormal proliferation of placental trophoblasts. The spectrum encompasses benign complete hydatidiform mole (CHM) and partial hydatidiform mole (PHM), and malignant forms — invasive mole, choriocarcinoma, placental-site trophoblastic tumour (PSTT), and epithelioid trophoblastic tumour (ETT) — collectively termed gestational trophoblastic neoplasia (GTN).[1,2]

Global incidence varies substantially: rates in Japan approximate 2 per 1,000 pregnancies — two to three times higher than in Europe and North America (0.6–1.1 per 1,000). In India, estimates range from 1 in 160 to 1 in 500 pregnancies, making GTD clinically significant in South Asian obstetric practice.[3,4] Recent data confirm that epidemiological patterns continue to evolve as routine first-trimester ultrasonography allows earlier identification of molar pregnancies — often before classical signs emerge — thereby changing the clinical phenotype seen at presentation.[5]

Despite historical associations with high maternal morbidity and mortality, advances in serum β-human chorionic gonadotropin (β-hCG) monitoring and chemotherapy have transformed prognosis. GTNs, even with widespread metastases, are among the most chemosensitive solid tumours, with cure rates exceeding 90%.[6] A 2021 Society of Gynecologic Oncology (SGO) evidence-based review endorsed by ACOG reaffirmed that timely referral and structured surveillance protocols are the primary drivers of favourable outcomes.[7]

Recognised risk factors for post-molar GTN include advanced maternal age, pre-evacuation β-hCG > 100,000 mIU/mL, uterine size large for gestational age, theca-lutein cysts > 6 cm, and prior molar pregnancy.[8] The 2021 FIGO Cancer Report update further highlighted the role of molecular genotyping and p57 immunohistochemistry in improving

ISSN (O): 2687-5365; ISSN (P): 2753-6556

diagnostic accuracy and risk stratification — tools increasingly applicable in tertiary centres.[9]

Despite well-defined global frameworks, institution-specific data from Indian referral centres remain sparse. Regional variation in presentation, resource constraints, and case-mix differences necessitate local audits to guide clinical protocols. This study therefore aimed to determine the incidence of molar pregnancy and GTN at Government General Hospital, Kakinada, characterise associated risk factors and clinical presentations, and evaluate treatment outcomes.

MATERIALS AND METHODS

Study Design and Setting: A prospective observational study was conducted in the Department of Obstetrics and Gynaecology, Government General Hospital (GGH), Kakinada — a tertiary referral centre affiliated with Rangaraya Medical College — over 18 months (May 2023 to November 2024). Institutional Ethics Committee approval and written informed consent from all participants were obtained prior to enrolment.

Participants: All antenatal women with confirmed molar pregnancy presenting to the outpatient or emergency department were consecutively enrolled (n = 40). Bleeding per vaginum in the first or second trimester due to causes other than molar pregnancy was an exclusion criterion.

Investigations: All patients underwent a standardised protocol: complete blood picture, blood grouping and typing, bleeding time/clotting time, thyroid-stimulating hormone (TSH), liver and renal function tests, serial serum β-hCG, pelvic ultrasonography (USG), chest X-ray (PA view), and histopathological examination (HPE) of evacuated material.

Management and Follow-up: All patients were managed by suction and sharp curettage. Post-evacuation surveillance followed FIGO/SGO guidelines7: weekly β-hCG until undetectable for three consecutive weeks, then monthly for six months. GTN was diagnosed per FIGO 2000 criteria: β-hCG plateau over four measurements in three weeks; rise > 10% over three weekly measurements in two weeks; detectable β-hCG ≥ 6 months post-evacuation; or histological choriocarcinoma. Low-risk GTN received single-agent methotrexate; high-risk cases received EMA-CO combination chemotherapy.[10]

Statistical Analysis: Data were analysed using SPSS version 13.0. Categorical variables are expressed as frequencies and percentages; continuous variables as means ± standard deviation.

RESULTS

Incidence: Of 11,800 total deliveries, 40 molar pregnancies were recorded (incidence 0.33%; 1 in 295 deliveries). GTN developed in 3 of 40 cases (7.5%).

Demographic and Clinical Characteristics: [Table 1] summarises the key findings of the study cohort.

Table 1: Demographic and Clinical Characteristics of the Study Cohort (n = 40)

Variable	N	(%)
Age group: 20–29 years	35	87.5
Socioeconomic class: Lower	22	55.0
Type: Complete mole	36	90.0
Normal BMI (18.5–24.9 kg/m²)	17	42.5
Multiparity (G2 and above)	24	60.0
Gestational age < 12 weeks	24	60.0
Past history of abortions	22	55.0
Positive family history	2	5.0
Amenorrhoea + bleeding PV	29	72.5
Baseline anaemia	18	45.0
β-hCG 50,000–1,00,000 mIU/mL	22	55.0
Post-procedure anaemia	27	67.5
Required blood transfusion	24	60.0
Progression to GTN	3	7.5

BMI = body mass index; β-hCG = beta-human chorionic gonadotropin; GTN = gestational trophoblastic neoplasia.

Diagnosis and Treatment: USG correctly identified molar pregnancy in 32 of 40 cases (diagnostic accuracy 80%). Histopathological examination and β-hCG assay each demonstrated 100% diagnostic accuracy. All patients were managed by suction and sharp curettage. Post-procedure anaemia occurred in 27 patients (67.5%); 24 patients (60%) required blood transfusion.

β-hCG Normalisation and Progression to GTN

Mean β-hCG normalisation time was 4.225 ± 2.57 weeks. Three patients (7.5%) fulfilled FIGO criteria for GTN. All three had: prior spontaneous abortion, pre-evacuation β-hCG > 1,00,000 mIU/mL, and complete hydatidiform mole on HPE. One additionally showed uterine size exceeding gestational age and a prior full-term delivery, requiring multi-drug (EMA-CO) chemotherapy.

DISCUSSION

The incidence of 0.33% observed in this study is consistent with figures from comparable South Indian and South Asian settings. Shah et al. reported 0.24% in a south Indian cohort,[9] while Fatima et al.

ISSN (O): 2687-5365; ISSN (P): 2753-6556

documented 0.45% from Pakistan.[10] The global systematic review by Joyce et al. (2022) confirms ongoing geographic disparities and highlights that first-trimester diagnosis — as seen in 60% of our cohort — is increasingly common with widespread ultrasound access, altering the classic clinical presentation.[11]

The GTN rate of 7.5% falls within the published 15–20% range for complete moles described in the 2021 FIGO update by Ngan et al,[5] and the SGO evidence-based review by Horowitz et al,[7] Our comparatively lower rate likely reflects early gestational age at presentation — an established protective factor.[12] The FIGO criteria applied in this study for GTN diagnosis align with the 2021 FIGO Cancer Report, which endorses serial hCG monitoring as both sensitive and cost-effective for GTN surveillance.[5]

The predominance of the 20–29 year age group (87.5%) reflects the reproductive demographics of the study region. The overrepresentation of the lower socioeconomic class (55%) corroborates the nutritional hypothesis: reduced dietary carotene and animal fat — prevalent in lower-income groups — are recognised aetiological contributors to GTD.[3,13] This association was highlighted in an Indian multicentre study by Prasad et al. (2023), which similarly found that nutritional deficiency indices correlated with molar pregnancy risk.[13]

Complete mole predominated (90%), consistent with Aziz et al. (79.48%).[14] The USG diagnostic accuracy of 80% compares favourably with international benchmarks; the 2022 BMJ Medicine review by Joyce et al. notes that first-trimester USG diagnosis has become the norm in high-resource settings, though its sensitivity decreases for early partial moles.[11] Histopathology and β-hCG achieved 100% accuracy in this study, consistent with their established roles as gold-standard confirmatory investigations.[5,7]

All three GTN cases harboured β-hCG > 1,00,000 mIU/mL and prior abortion history, mirroring established risk predictors.[8,12] The mean β-hCG normalisation time of 4.225 ± 2.57 weeks was substantially shorter than the 10.81 ± 6.58 weeks reported by Zakaria et al,[15] which may reflect earlier gestational age at evacuation. The 60% blood transfusion rate underscores the haematological burden in resource-limited referral settings, consistent with findings in similar studies from low- and middle-income countries.[10,15]

The 100% curability observed with timely management corroborates the international consensus. The Horowitz et al. SGO review,[7] and Ngan et al. FIGO 2021 update,[5] both emphasise that cure rates approach 100% when FIGO-guided post-evacuation surveillance is rigorously maintained — a finding validated in this Indian tertiary care setting.

CONCLUSION

This prospective study demonstrates a molar pregnancy incidence of 0.33% with 7.5% progression to GTN at a tertiary care centre in coastal Andhra Pradesh. Key GTN risk factors — prior abortion, β-hCG > 1,00,000 mIU/mL, and complete mole type — align with international evidence. Routine first-trimester ultrasonography enables early diagnosis and reduces morbidity. Systematic post-evacuation β-hCG surveillance, guided by FIGO/SGO protocols, is essential for timely detection and treatment of persistent trophoblastic disease, rendering GTD virtually curable. Larger multicentre Indian studies with molecular genotyping are warranted to refine regional risk stratification models.

REFERENCES

1. Seckl MJ, Sebire NJ, Berkowitz RS. Gestational trophoblastic disease. Lancet. 2010;376(9742):717–29.
2. Lurain JR. Gestational trophoblastic disease I: epidemiology, pathology, clinical presentation and diagnosis of gestational trophoblastic disease and management of hydatidiform mole. Am J Obstet Gynecol. 2010;203(6):531–9.
3. Altieri A, Franceschi S, Ferlay J, Smith J, La Vecchia C. Epidemiology and aetiology of gestational trophoblastic diseases. Lancet Oncol. 2003;4(11):670–8.
4. Berkowitz RS, Goldstein DP. Clinical practice. Molar pregnancy. N Engl J Med. 2009;360(16):1639–45. doi:10.1056/NEJMcp0900696
5. Ngan HYS, Seckl MJ, Berkowitz RS, Xiang Y, Golfier F, Sekharan PK, et al. Diagnosis and management of gestational trophoblastic disease: 2021 update. Int J Gynaecol Obstet. 2021;155(Suppl 1):86–93.
6. Lurain JR. Gestational trophoblastic disease II: classification and management of gestational trophoblastic neoplasia. Am J Obstet Gynecol. 2011;204(1):11–8.
7. Horowitz NS, Eskander RN, Adelman MR, Burke W. Epidemiology, diagnosis, and treatment of gestational trophoblastic disease: a Society of Gynecologic Oncology evidenced-based review and recommendation. Gynecol Oncol. 2021;163(3):605–13.
8. Kohorn EI. Dynamic staging and risk factor scoring for gestational trophoblastic disease. Int J Gynecol Cancer. 2007;17(5):1124–30.
9. Shah S, Devi SL, Reddy SR, Mitra M, Sravanthi K. A prospective study of molar pregnancies in a tertiary care hospital. IOSR J Dent Med Sci. 2021;20(12):41–5.
10. Fatima M, Kasi PM, Baloch SN, Kassi M, Marri SM, Kassi M. Incidence, management, and outcome of molar pregnancies at a tertiary care hospital in Quetta, Pakistan. ISRN Obstet Gynecol. 2011
11. Joyce CM, Fitzgerald B, McCarthy TV, Coulter J, O'Donoghue K. Advances in the diagnosis and early management of gestational trophoblastic disease. BMJ Med. 2022;1(1):e000321.
12. Coyle C, Short D, Jackson L, Sebire NJ, Kaur B, Harvey R, et al. What is the optimal duration of human chorionic gonadotrophin surveillance following evacuation of a molar pregnancy? A retrospective analysis on over 20,000 consecutive patients. Gynecol Oncol. 2018;148(2):254–7.
13. Prasad D, Parihar M, Swarnkar M. Clinicopathological study of gestational trophoblastic disease in a tertiary care hospital: a prospective observational study. Indian J Gynecol Oncol. 2023;21(3):47.
14. Aziz N, Yousfani S, Soomro I, Mumtaz F. Gestational trophoblastic disease. J Ayub Med Coll Abbottabad. 2012;24(1):7–9.
15. Zakaria A, Hemida R, Elrefaie W, Refaie E. Incidence and outcome of gestational trophoblastic disease in lower Egypt. African Health Sci. 2020;20(1):73–82.

ISSN (O): 2687-5365; ISSN (P): 2753-6556