Case Report

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Typical Pulmonary Carcinoid Presenting with Massive Hemoptysis in Early Pregnancy: A Case Report

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ABSTRACT

Massive hemoptysis during pregnancy is a rare but potentially life-threatening emergency, and pulmonary carcinoid is an unusual underlying cause. We report a 31-year-old primigravida who presented at five weeks of gestation with sudden massive hemoptysis. Chest computed tomography and flexible bronchoscopy revealed a hypervascular endobronchial lesion in the right bronchus intermedius causing partial airway obstruction and right middle lobe collapse. Histopathological and immunohistochemical examination confirmed a typical pulmonary carcinoid. Following multidisciplinary evaluation, definitive surgery was postponed until the second trimester because the patient remained clinically stable without recurrent bleeding. At 12 weeks of gestation, she underwent right middle lobectomy with systematic mediastinal lymph node dissection, achieving complete (R0) resection with negative lymph nodes. The postoperative course was uneventful, and both maternal recovery and fetal development remained favorable during follow-up. This case highlights the importance of multidisciplinary management and appropriately timed surgical intervention in achieving favorable maternal, fetal, and oncologic outcomes.

Introduction

Massive hemoptysis is a life-threatening respiratory emergency that requires prompt intervention [1,2]. Pulmonary carcinoid tumors are uncommon neuroendocrine neoplasms, comprising 1–2% of lung malignancies, with typical carcinoids exhibiting indolent behavior and excellent survival after complete resection [3,4]. While most central carcinoids cause cough or minor hemoptysis, massive hemoptysis as the initial presentation is distinctly rare [1,7]. Managing such tumors during pregnancy is challenging due to the need for multidisciplinary coordination, balanced imaging, and surgical timing. The second trimester is generally preferred for non-obstetric surgery to minimize the risk to the fetus [9,10]. Reports describing typical pulmonary carcinoids presenting with massive hemoptysis during the first trimester of pregnancy and managed by delayed second-trimester lobectomy are exceedingly rare. We present a case of a typical pulmonary carcinoid presenting with massive hemoptysis in early pregnancy that was managed

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with delayed second-trimester lobectomy.

Case Presentation

A 31-year-old primigravida (G1P0) at five weeks of gestation presented with three episodes of massive hemoptysis totaling ~500 mL of fresh blood. The patient was hemodynamically stable with no respiratory distress. She was a non-smoker with no relevant medical, surgical, or family history. Physical examination revealed mildly decreased breath sounds in the right middle zone. Initial laboratory tests showed no coagulopathy or anemia. The detailed clinical timeline from presentation to discharge is presented in Table 1.

This case report was conducted in accordance with the Declaration of Helsinki and approved by the institutional ethics committee.

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- Chest CT: Revealed a 25×15 mm enhancing endobronchial lesion in the right bronchus intermedius causing partial obstruction and right middle lobe collapse, along with patchy ground-glass opacities suggesting aspiration (Figure 1).

- Flexible Bronchoscopy: Revealed a reddish hypervascular polypoid mass occluding the right middle and lower lobe bronchi (Figure 2).

- Pathology: Biopsy confirmed a typical pulmonary carcinoid with positive staining for chromogranin A, synaptophysin, and pan-cytokeratin, and a Ki-67 proliferation index <1% (WHO 2021 criteria). No necrosis or increased mitoses were seen.

Following confirmation of typical carcinoid and multidisciplinary consensus (thoracic surgery, pulmonology, obstetrics, anesthesiology), surgery was planned for the second trimester.

- Preoperative Status: At 12 weeks gestation, the patient was stable with good pulmonary function (FEV1 64% predicted) and normal fetal heart rate.

- Surgical Procedure: On June 16, 2026, a right posterolateral thoracotomy and right middle lobectomy with systematic mediastinal lymph node dissection (stations 7, 8) were performed. One-lung ventilation was used with stable maternal and fetal monitoring.

- Pathological Result (Final): Microscopic exam confirmed the typical carcinoid with negative margins (R0 resection) and negative lymph nodes (pN0).

The patient had an uncomplicated postoperative course. She was discharged on postoperative day 10 in good condition with a viable pregnancy. Chest tubes were removed sequentially. At follow-up, she remained asymptomatic, had no recurrent hemoptysis, and the pregnancy continued to progress normally with appropriate fetal development.

Discussion

Pulmonary carcinoid tumors are uncommon

Table 1. Clinical timeline from presentation to discharge

Study Day	Event
Day 1	Presentation with sudden massive hemoptysis at 5 weeks of gestation
Day 3	Contrast-enhanced chest CT demonstrated an enhancing endobronchial mass
Day 9	Referral to the tertiary center; repeat chest CT and flexible bronchoscopy performed
Day 13	Endobronchial biopsy confirmed typical pulmonary carcinoid (Ki-67 <1%)
Day 13	Multidisciplinary team (MDT) discussion recommended deferring definitive surgery until the second trimester because the patient remained clinically stable
Day 54	Hospital admission for elective surgical management
Day 56	Preoperative evaluation completed
Day 60	Right middle lobectomy with systematic mediastinal lymph node dissection performed (12 weeks of gestation)
Day 63	Transferred from the intensive care unit; first chest tube removed
Day 66	Second chest tube removed
Day 70	Discharged in good condition
Follow-up	Mother remained asymptomatic without recurrent hemoptysis, and fetal development continued normally

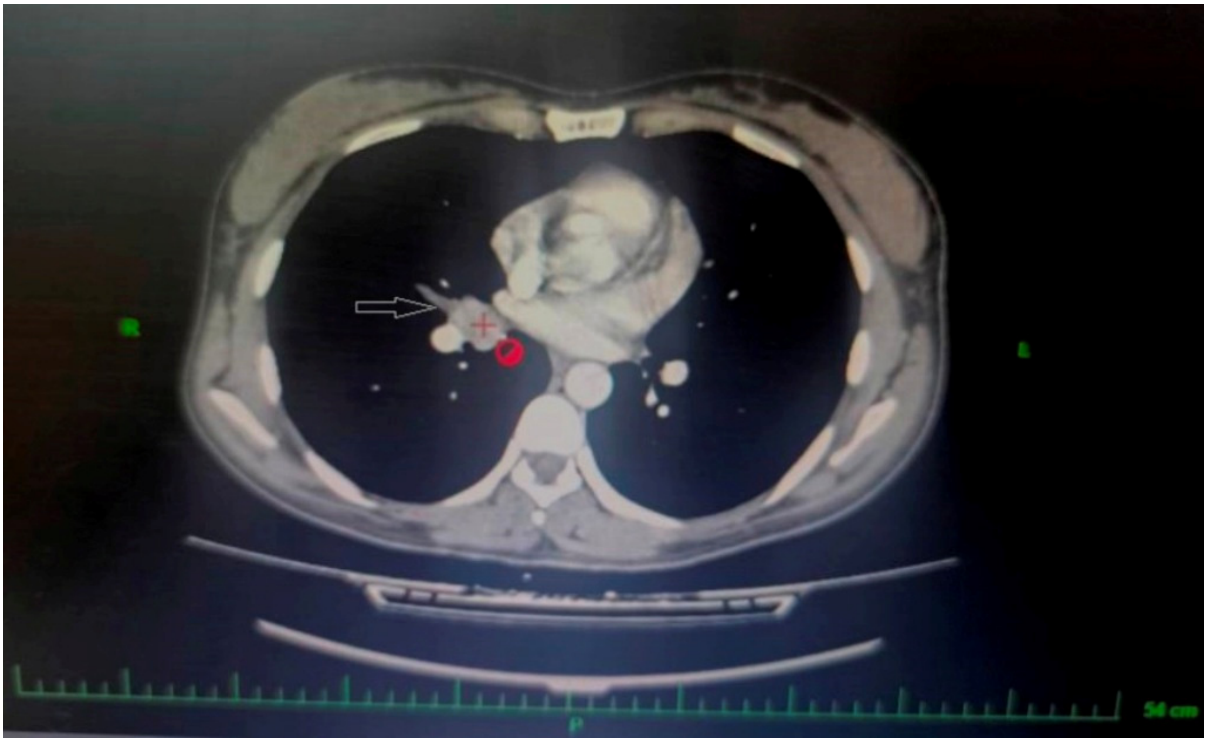

Fig. 1. Contrast-enhanced computed tomography (CT) of the chest demonstrated a 25 × 15 mm enhancing endobronchial mass in the right bronchus intermedius, causing partial airway obstruction and right middle lobe (RML) collapse. Right lower lobe (RLL) ground-glass opacities (GGOs) were suggestive of aspiration
CT: computed tomography RML: right middle lobe RLL: Right lower lobe GGO: ground-glass opacities

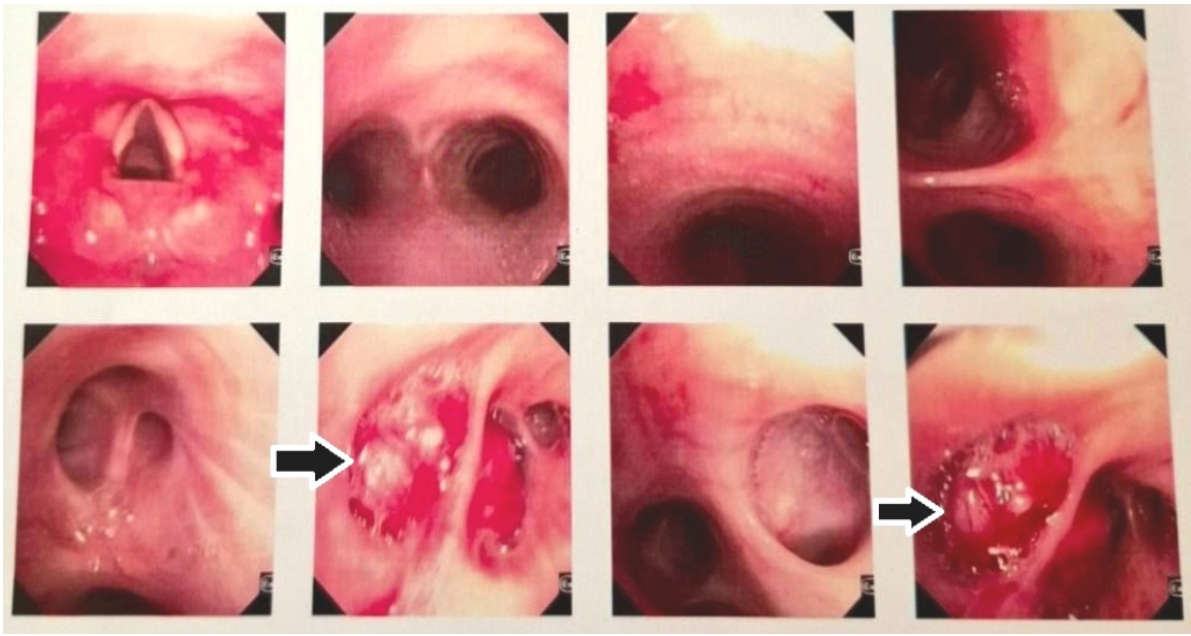

Fig. 2. Flexible bronchoscopy demonstrated a smooth, hypervascular endobronchial mass at the bifurcation of the right middle lobe (RML) and right lower lobe (RLL) bronchi, causing marked luminal obstruction. The black arrow indicates the endobronchial mass. Histopathological examination confirmed a typical pulmonary neuroendocrine tumor (NET).
RML: right middle lobe RLL: right lower lobe NET: neuroendocrine tumor

neuroendocrine neoplasms, comprising 1–2% of primary lung malignancies and approximately 25% of all carcinoid tumors [1-3]. The 2021 WHO classification distinguishes typical carcinoid (TC) from other neuroendocrine tumors based on low mitotic activity (<2 per 2 mm²), absence of necrosis, and indolent behavior, which confers excellent long-term survival after complete resection [4,5]. Most TCs arise centrally, causing cough, recurrent infections, or hemoptysis due to their hypervascular nature [2,6]. However, massive hemoptysis as the presenting symptom is distinctly rare, as demonstrated in our patient, which underscores the diagnostic challenge and the need for prompt, targeted investigation.

Managing a thoracic tumor during pregnancy introduces significant complexity, as every intervention must weigh maternal benefit against fetal risk. Literature on pulmonary carcinoids in pregnancy is sparse, consisting mainly of case reports, which makes multidisciplinary team (MDT) decision-making essential [7,8]. In our case, the MDT included thoracic surgeons, pulmonologists, obstetricians, anesthesiologists, and radiologists to orchestrate a safe pathway.

The diagnostic work-up was carefully sequenced. Contrast-enhanced CT was pivotal, accurately identifying an enhancing endobronchial mass in the bronchus intermedius with middle lobe collapse—findings highly suggestive of carcinoid. This was followed by flexible bronchoscopy, which confirmed a smooth, hypervascular polypoid lesion. This step is critical not only for diagnosis but also to alert the bronchoscopist to the elevated risk of bleeding from biopsy [2,6,9]. Pathology and immunohistochemistry remain the gold standard; our patient's tumor demonstrated diffuse positivity for chromogranin A and synaptophysin with a Ki-67 index <1%, definitively establishing the diagnosis of TC [4,5].

Regarding treatment, complete anatomical resection (lobectomy) with systematic lymph node dissection is the standard of care for localized TC and offers a curative approach [3,5,10]. Our patient underwent a right middle lobectomy with nodal dissection, achieving an R0 resection (negative margins and pN0), which carries an excellent prognosis.

The timing of surgery was a key management decision. Guidelines from ACOG and the American Society of Anesthesiologists support performing medically necessary non-obstetric surgery during pregnancy, but when feasible, delaying until the second trimester is preferred due to lower risks of spontaneous abortion and preterm labor [11,12]. Because our patient remained hemodynamically stable without recurrent bleeding after the initial episode, a planned delay to 12 weeks gestation was a safe and evidence-based strategy.

The success of this approach hinged on meticulous perioperative planning, including one-lung ventilation and serial fetal heart rate monitoring, which resulted in favorable maternal and fetal outcomes. To our knowledge, reports of TC with massive hemoptysis in the first trimester managed by delayed second-trimester surgery are exceedingly rare. While this is a single case and limits generalizability, it provides valuable support for an individualized, MDT-driven strategy in similar clinical scenarios.

Conclusion

Massive hemoptysis in pregnancy is a rare but life-threatening emergency requiring prompt, multidisciplinary evaluation. Although uncommon, pulmonary carcinoid tumors must be considered in the differential diagnosis of endobronchial lesions causing hemoptysis, especially in young patients without typical risk factors.

This case demonstrates that individualized, multidisciplinary decision-making can successfully balance maternal oncologic treatment with fetal safety. In clinically stable pregnant patients, delaying definitive surgery until the second trimester is a safe and effective strategy. Our patient achieved complete (R0) anatomical resection of a typical pulmonary carcinoid with negative margins and no nodal involvement, while maintaining an uncomplicated pregnancy.

Successful management relied on close collaboration among thoracic surgeons, pulmonologists, obstetricians, anesthesiologists, radiologists, pathologists, and intensivists. Meticulous perioperative planning and serial fetal monitoring contributed to excellent maternal and fetal outcomes.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this article.

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Conflict of Interests

The authors have no conflict of interest to declare.

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