Intracranial Meningioma in a Patient with ABPA: A Case Report and Literature Review

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Meningiomas are the most common primary intracranial tumours, accounting for about 36% of central nervous system neoplasms. Arising from arachnoid cap cells, they are typically benign, slow-growing, and often found incidentally, though symptoms may occur from compression of nearby neural structures. We present a case of intracranial meningioma in a 25-year-old female with allergic bronchopulmonary aspergillosis (ABPA) caused by *Aspergillus terreus.* The patient presented with holocranial headache, diminished right eye vision, and other neurological symptoms. Radiological investigations revealed a right temporal space-occupying lesion with characteristic features of meningioma. The patient underwent right temporal craniotomy with tumour decompression. Histopathological examination confirmed the diagnosis of meningioma. This case highlights the importance of considering meningioma in the differential diagnosis of CNS lesions, even in patients with concurrent fungal disease in other organ systems. Additionally, it draws attention to *Aspergillus terreus* as a causative agent of ABPA, which is relatively uncommon compared to *Aspergillus fumigatus.*

Introduction

Meningiomas are the most common primary intracranial tumours, accounting for approximately 36% of all central nervous system tumours [1]. They are typically benign, slow-growing neoplasms that arise from the arachnoid cap cells of the meninges. Most meningiomas are asymptomatic and discovered incidentally, but they can cause symptoms due to compression of adjacent neural structures.

Here, we present a case of intracranial meningioma in a young female with concurrent allergic bronchopulmonary aspergillosis (ABPA), an immunological disorder characterized by hypersensitivity to Aspergillus antigens. While Aspergillus fumigatus is the most common cause of ABPA worldwide, our patient presented with ABPA due to Aspergillus (A.) terreus, which is relatively uncommon but increasingly recognized as a causative agent of ABPA [2]. A. terreus accounts for approximately 3-5% of ABPA cases and is notable for its intrinsic resistance to amphotericin B, which may influence treatment decisions [3,4].

Case presentation

A 25-year-old woman presented to the neurosurgery department at GB Pant Hospital in New Delhi with a six-month history of diffuse headache, gradually worsening vision in her right eye, dizziness, and nausea. She reported no episodes of loss of consciousness, vomiting, or seizures. The patient had a 3-year history of recurrent respiratory symptoms, including cough, wheezing, and dyspnoea, previously diagnosed as allergic asthma. She had no other known comorbidities or history of immunosuppressive therapy.

On physical examination, the patient was afebrile with stable vital signs

(pulse rate 84/min, blood pressure 110/70 mmHg). Neurological examination revealed normal higher mental functions, intact cranial nerves, normal muscle tone and power in all limbs, and preserved deep tendon reflexes. There were no signs of meningeal irritation. Respiratory examination revealed bilateral scattered rhonchi and occasional crackles.

Diagnostic Workup

Table1: Initial laboratory investigations		
Haemoglobin	11.5 g/dL	
Total leukocyte count	1900/mm³	
Differential leukocyte count	Neutrophils	56%
	Lymphocytes	36%
	Monocytes	5%
	Eosinophils	3%
Absolute eosinophil count	57 cells/mm³	
Platelet count	180,000/mm³	
HbA1c	5.55%	
Liver function tests	Total bilirubin	0.2 mg/dL
	SGOT	17 U/L
	SGPT	17 U/L
	ALP	187 U/L
Renal function tests	Blood urea	28 mg/dL
	Creatinine	0.6 mg/dL
Serum electrolytes	Sodium	139 mEq/L
	Potassium	4.0 mEq/L
Viral markers	HBsAg	Negative
	HCV	Negative
	HIV	Negative

SGOT: Serum Glutamic Oxaloacetic Transaminase
SGPT: Serum Glutamic Pyruvic Transaminase
ALP: Alkaline Phosphatase
HBsAg: Hepatitis B surface antigen
HCV: Hepatitis C virus antibodies
HIV: Human Immunodeficiency Virus (antigen and antibody) detection.

Table 2: Immunological workup revealed	
Total serum IgE	365.5 IU/mL
Positive specific IgE against Aspergillus terreus	8.7 KU/mL
Aspergillus precipitins	Positive (2 precipitin bands)
Aspergillus IgG	6.21 U/mL (negative: <8 U/mL)
Normal absolute CD3+ T-cell count	1250 cells/µL
Normal absolute CD4+ T-cell count	850 cells/µL

While the total serum IgE level (365.5 IU/mL) was elevated above normal range, it was below the typical threshold (>1000 IU/mL) for classical ABPA according to ISHAM criteria [5]. This may represent an early or atypical presentation of ABPA, sometimes seen with non-fumigatus species. The strong specific IgE response against *A. terreus* (8.7 KU/mL) and positive precipitins, along with radiological findings, supported the diagnosis of ABPA despite the lower total IgE.

Table 3: Allergy skin tests showed positive reactions to multiple Aspergillus species	
Aspergillus fumigatus	3×2 mm
Aspergillus flavus	2×2 mm
Aspergillus niger	1×1 mm
Aspergillus terreus	8×6 mm (strongest reaction)

- **Mycological Investigations**

Sputum examination:

- Direct wet mount microscopy: Revealed numerous septate, hyaline fungal hyphae with acute-angle branching, suggestive of *Aspergillus species*
- KOH mount: Confirmed presence of hyaline, septate hyphae with dichotomous branching
- Culture: The sputum sample was inoculated onto Sabouraud Dextrose Agar (SDA) containing chloramphenicol and incubated at temperatures of 25°C and 37°C.

  After 3 days, colonies appeared compact, velvety, and cinnamon-brown to buff-coloured
  The reverse side of the colonies displayed a pale yellow to brown hue.

- Lactophenol Cotton Blue (LPCB) mount: Microscopy of the culture revealed –

  Hyaline, septate hyphae

  Conidiophores smooth-walled, becoming roughened near the vesicle
  Biseriate conidial heads with compact columnar arrangement
  Vesicles were dome-shaped, measuring 10–16 µm in diameter, with metulae and phialides covering the upper half of the vesicle.

Importantly, characteristic globose to ellipsoidal aleurioconidia (accessory conidia) were observed arising laterally from the hyphae, confirming *A. terreus* identification [6].

While morphological characteristics strongly suggested *A. terreus*, molecular identification techniques such as ITS region sequencing or MALDI-TOF mass spectrometry would have provided definitive species confirmation, which is recommended for non-fumigatus Aspergillus species with clinical significance [7].

- Bacterial culture: No pathogenic bacteria isolated
- Acid-fast bacilli: Negative

Antifungal susceptibility testing should have been performed on the *A. terreus* isolate according to CLSI or EUCAST guidelines to determine minimum inhibitory concentrations (MICs) for various antifungals, which would have guided more precise therapy. This is particularly important for *A. terreus*, which can show variable susceptibility patterns to triazoles [8].

A detailed environmental history was obtained to identify potential sources of *A. terreus* exposure. The patient reported having multiple potted plants at home and periodically engaging in gardening activities, which are known risk factors for exposure to *A. terreus*, as it is predominantly found in soil environments [3].

- **Pulmonary function tests demonstrated:**
  - FEV1: 65% of predicted
  - FVC: 82% of predicted
  - FEV1/FVC ratio: 0.68 (suggesting obstructive pattern)

  - Bronchodilator reversibility: 18% improvement in FEV1 (positive)
- **Radiological Investigations**
  - CECT Thorax revealed bilateral cystic bronchiectasis and endobronchial hyperdense mucoid impaction in dilated bronchi, giving the classical "finger-in-glove" appearance suggestive of allergic bronchopulmonary aspergillosis. A patchy area of consolidation was observed in the right middle lobe (Figure1).
  - MRI Brain showed a well-circumscribed extra-axial mass in the right middle cranial fossa with broad-based dural attachment to the greater wing of sphenoid, measuring approximately 6.5×4.1×3.8 cm (Figure 2). The lesion was isointense on T1- and T2-weighted images and showed intense homogeneous enhancement with a dural tail sign. It extended medially to the ipsilateral cavernous sinus partially encasing the intracavernous segment of the internal carotid artery and extended antero-inferiorly to involve the pterygoid maxillary fissure and ipsilateral nasal cavity. Significant mass effect was observed with midline shift of 7.2 mm toward the left and right uncal herniation.
  - CECT Brain and Paranasal Sinuses showed heterogeneously hypodense contents filling and expanding bilateral maxillary, sphenoid, and ethmoid sinuses with mild mucosal thickening. The right pterygopalatine fossa was expanded with extension to various foramina, including the right sphenopalatine foramen, inferior and superior orbital fissures, and right optic foramen.

DIAGNOSIS

Based on the clinical, laboratory, mycological, and radiological findings, the following diagnoses were established:

Right temporal meningioma (WHO grade I)

Allergic bronchopulmonary aspergillosis (ABPA-CB stage) according to ISHAM working group criteria, with sensitization predominantly to Aspergillus terreus.

MANAGEMENT AND HOSPITAL COURSE

Preoperative Management: Prior to neurosurgical intervention, the patient's ABPA was stabilized with:

- Oral prednisolone 0.5 mg/kg/day for 1 week
- Inhaled budesonide (inhaled corticosteroids) was administered at 400 µg twice daily
- Formoterol (long-acting bronchodilators) was administered at 12 µg twice daily
- Oral voriconazole 200 mg twice daily as an antifungal steroid-sparing agent (selected over itraconazole due to *A. terreus* isolation, which can exhibit reduced susceptibility to itraconazole in some cases) [4]

It is important to note that in vitro susceptibility patterns do not always correlate with clinical response, particularly for *A. terreus*, which can demonstrate paradoxical growth effects in the presence of certain antifungals despite apparent in vitro susceptibility [9].

Surgical Management: The patient underwent right temporal craniotomy with tumour decompression. Intraoperative findings included tense dura, bulging brain, and a firm, moderately vascular extra axial mass arising from the temporal base with arachnoid invasion. A Simpson Grade II resection was performed, indicating complete removal of the tumour along with coagulation of its dural attachment. [10].

Histopathological Findings: Histopathological examination of the excised tissue confirmed the diagnosis of meningioma (WHO grade I), demonstrating whorled nests of meningothelial cells with intranuclear pseudo inclusions and psammoma bodies. Immunohistochemistry demonstrated positive expression of epithelial membrane antigen (EMA) and vimentin, supporting the diagnosis of meningioma. The Ki-67 labelling index was found to be 2%, suggesting low cellular proliferation.

Postoperative Management: Following surgery, the patient was initiated on the following treatments:

- Levetiracetam (Antiepileptics) 500 mg twice daily
- Pantoprazole (Proton pump inhibitors) 40 mg once daily
- Nutritional supplements

Continued ABPA management with:

- Tapering doses of oral prednisolone (starting at 0.5 mg/kg/day and tapering by 5 mg every 2 weeks)
- Budesonide (inhaled corticosteroids) was prescribed at 400 µg twice daily.
- Formoterol (long-acting bronchodilators) was administered at 12 µg twice daily.
- Voriconazole (Antifungal) 200 mg twice daily per oral, with a planned treatment duration of 16 weeks
- Regular liver function monitoring due to potential voriconazole hepatotoxicity

HOSPITAL COURSE

The patient's hospital stay was uneventful. Regular dressings were performed, and stitch line remained healthy. At the time of discharge (day 6 post-surgery), the patient was vitally stable, taking oral medications, with a healthy stitch line and no new neurological deficits. Serial serum IgE levels were planned for monitoring ABPA response to therapy. Quantitative culture techniques to assess fungal burden, such as colony-forming unit counts from sputum samples, were initiated to provide objective metrics for monitoring treatment response beyond clinical symptoms and IgE levels [11].

FOLLOW-UP and OUTCOMES

The patient was discharged with instructions to follow up in the neurosurgery outpatient department after 7 days and again after 2 weeks. At the first follow-up visit, the surgical site appeared healthy with no signs of infection. The patient reported significant improvement in headache but continued to have mild visual disturbances in the right eye.

At the **1-month** follow-up visit, contrast-enhanced MRI brain showed postoperative changes with no evidence of residual or recurrent tumour. Total serum IgE had decreased to 210 IU/mL, indicating good response to ABPA therapy. Pulmonary function tests showed improvement with FEV1 increasing to 78% of predicted.

At the **3-month** follow-up, the patient demonstrated marked clinical improvement with resolution of headache and partial improvement in right eye vision. The ABPA was well-controlled with tapering doses of oral prednisolone (now at 5 mg/day), continued inhaled corticosteroids, and completion of voriconazole therapy. Repeat sputum culture showed no growth of Aspergillus terreus, suggesting successful clearance of the fungus.

At **6 months**, the patient underwent comprehensive evaluation at a pulmonology center for management of her ABPA. Her pulmonary symptoms were well-controlled with inhaled corticosteroids and periodic courses of oral prednisone during exacerbations. Total serum IgE had decreased to 180 IU/mL, and chest imaging showed improvement in bronchiectasis and clearing of mucoid impactions.

At the **12-month** follow-up, the patient remained clinically stable with no evidence of tumour recurrence. MRI demonstrated postoperative changes with no enhancing lesion. Pulmonary function tests showed FEV1 at 82% of predicted. The patient was advised to continue annual MRI surveillance for the next 5 years, then biennial surveillance thereafter, which is the standard follow-up protocol for completely resected WHO grade I meningiomas [12]. For ABPA management, a maintenance regimen of inhaled corticosteroids and as-needed short courses of systemic corticosteroids during exacerbations was recommended, with quarterly monitoring of total serum IgE levels.

Discussion

Meningioma Considerations

Meningiomas are the most common primary intracranial tumours, with an annual incidence of approximately 7.8 per 100,000 individuals [1]. They are more common in females, with a female-to-male ratio of approximately 2:1. The radiological findings in this case were characteristic of meningioma, including a dural-based, extra-axial mass with homogeneous enhancement and dural tail sign. These features are highly suggestive of meningioma and help differentiate it from other intracranial lesions.

The management of meningiomas depends on various factors, including size, location, symptoms, and patient characteristics. Surgical resection is the treatment of choice for symptomatic meningiomas, as was done in our patient. The extent of resection is an important predictor of recurrence, with Simpson grade I resection (complete removal of tumour, dural attachment, and involved bone) associated with the lowest recurrence rates [1 0].

ABPA Considerations

Allergic bronchopulmonary aspergillosis (ABPA) is classified based on the criteria established by the International Society for Human and Animal Mycology (ISHAM) working group into the following categories:

- **ABPA-S (serological ABPA):** A milder form characterized by the absence of bronchiectasis.
- **ABPA-CB (ABPA with central bronchiectasis):** A more advanced stage of the disease marked by the presence of central bronchiectasis.
- **ABPA-ORF (ABPA with other radiological features):** Represents an advanced form with additional radiological abnormalities beyond bronchiectasis.

Our patient presented with ABPA-CB, characterized by the presence of central bronchiectasis on chest imaging. The strongest skin test reaction to *A. terreus* (8×6 mm) which, combined with its isolation from the sputum culture, is particularly significant—especially considering that ABPA is usually associated with *A. fumigatus*.

***Aspergillus terreus* ABPA: Special Considerations**

Aspergillus terreus is an uncommon cause of ABPA, responsible for approximately 3-5% of cases globally [2]. It has several distinctive features that merit special consideration:

- **Morphological characteristics**: *A. terreus* produces distinctive aleurioconidia (accessory conidia) along the hyphae, a feature not seen in other common *Aspergillus species* [6]. These accessory conidia, along with the compact, columnar arrangement of conidia on biseriate conidial heads and the cinnamon-brown colony colour, are key diagnostic features observed in our patient's culture.
- **Antifungal susceptibility**: *A. terreus* is intrinsically resistant to amphotericin B, with MICs typically higher than those of other *Aspergillus species* [13]. This necessitates the use of alternative antifungal agents such as voriconazole or posaconazole as first-line therapy. In our patient, voriconazole was chosen instead of the more commonly used itraconazole for this reason.
- **Clinical implications**: Some studies suggest that ABPA caused by *A. terreus* may have a different clinical course compared to *A. fumigatus*-induced ABPA, with potentially more severe bronchiectasis and higher relapse rates, although data are limited [2]. Our patient's good response to therapy, however, suggests that standard treatment protocols can be effective when appropriately tailored to the causative species.
- **Geographical distribution**: *A. terreus* is more commonly isolated in tropical and subtropical regions, including parts of India, which may explain its identification in our patient [3]. Environmental studies from northern India have shown that A. terreus can represent up to 10% of airborne *Aspergillus* conidia in certain regions [14].

The management of ABPA typically includes two key therapeutic strategies:

1. **Anti-inflammatory therapy**: Systemic corticosteroids to suppress the hypersensitivity response
2. **Antifungal therapy**: To reduce the fungal burden and decrease antigenic stimulation

Our patient was treated with a combination of oral prednisolone and voriconazole, which is consistent with current guidelines adapted for *A. terreus* [15]. Voriconazole has demonstrated efficacy against *A. terreus* and may also provide a steroid-sparing benefit in the management of ABPA. The monitoring of treatment response using total serum IgE levels is standard practice, with a 35-50% reduction from baseline indicating a good response to therapy [5].

Concurrent Management Considerations

It is noteworthy that our patient had normal CD3+ and CD4+ T-cell counts, indicating intact cellular immunity. This is important because immunocompromised states can be associated with various intracranial pathologies, including opportunistic infections and certain malignancies. The coexistence of ABPA and meningioma in our patient appears to be coincidental, as there is no established pathophysiological link between these two conditions. However, several management considerations were important in this case:

- **Perioperative corticosteroid management**: Our patient was already on corticosteroids for ABPA when she underwent neurosurgery. This required careful management to maintain control of ABPA while avoiding excessive immunosuppression during the perioperative period.
- **Antifungal therapy during neurosurgical recovery**: Voriconazole was continued during the perioperative period to prevent ABPA exacerbation, with monitoring of liver function tests due to its potential hepatotoxicity.
- **Pulmonary optimization**: Preoperative optimization of pulmonary status using bronchodilators and corticosteroids was important to reduce the risk of postoperative pulmonary complications.
- **Interdisciplinary approach:** Collaboration between neurosurgeons, pulmonologists, medical mycologists, and infectious disease specialists was essential for optimizing outcomes in this complex case.

Radiological Considerations

The radiological features in this case were initially suggestive of meningioma, as is commonly seen with dural-based lesions. The presence of dural tail sign, homogeneous enhancement, and broad-based attachment to the sphenoid wing are characteristic of meningiomas [16].

Meningiomas typically appear as well-defined, extra-axial masses that are isointense to slightly hypointense on T1-weighted MRI sequences and isointense to slightly hyperintense on T2-weighted sequences. These lesions show uniform enhancement following contrast administration and frequently exhibit a dural tail sign, characterized by thickening and enhancement of the dura adjacent to the tumour. These features were present in our patient's imaging studies, supporting the diagnosis of meningioma.

While the presence of paranasal sinus involvement might raise suspicion for invasive processes like fungal infections or malignancies, in this case, it represented extension of the meningioma rather than a separate pathological process. The absence of bone erosion and the presence of a well-defined tumour margin further supported the diagnosis of meningioma over invasive processes.

For ABPA, the chest imaging demonstrated characteristic findings of bilateral bronchiectasis and high-attenuation mucus plugging, creating the classic "finger-in-glove" appearance. This radiological pattern is highly suggestive of ABPA and, when combined with clinical, mycological, and immunological findings, is diagnostic.

Histopathological Considerations

Histopathological examination is the gold standard for diagnosing meningiomas. WHO grade I meningiomas, the most common type, demonstrate various histological patterns, including meningothelial, fibrous, transitional, psammomatous, and angiomatous variants. Our patient's tumour showed features of a meningothelial meningioma with whorled nests of cells and occasional psammoma bodies.

Immunohistochemical staining showed positivity for epithelial membrane antigen (EMA) and vimentin, which helps differentiate meningiomas from other dural-based lesions. The absence of atypical features such as increased mitotic activity, brain invasion, or necrosis classified our patient's tumour as a WHO grade I meningioma, which generally has a favourable prognosis.

MANAGEMENT APPROACH

Meningioma Management: Management of intracranial meningiomas requires a multidisciplinary approach involving neurosurgery, neuroradiology, and sometimes radiation oncology. The principles of management include:

- **Surgical resection:** Removal of the tumour to relieve mass effect and achieve histological diagnosis
- **Simpson grading:** Classification of the extent of resection, with lower grades associated with lower recurrence rates
- **Radiation therapy**: Considered for sub totally resected tumours, recurrent tumours, or high-grade meningiomas
- **Follow-up imaging:** Regular monitoring to detect recurrence or residual tumour growth

In our patient, surgical debulking was performed with good clinical outcome. The Simpson grade of resection was grade II (complete tumour removal with coagulation of dural attachment), which is associated with a recurrence rate of approximately 10-15% over 10 years [17].

ABPA Management

The concurrent diagnosis of ABPA in our patient required separate management. ABPA is characterized by hypersensitivity to Aspergillus antigens and typically presents with asthma, recurrent pulmonary infiltrates, and bronchiectasis. The diagnosis is based on clinical, radiological, and immunological criteria, according to the ISHAM working group criteria, which our patient fulfilled despite a lower total IgE level than typically seen [5].

Management of ABPA involves:

- **Corticosteroids:** To suppress the inflammatory response, with an initial dose of 0.5 mg/kg/day of prednisolone for 2 weeks, followed by tapering over 3-6 months.
- **Antifungal agents:** Voriconazole (200 mg twice daily) for 16 weeks to decrease fungal load, specifically selected for its effectiveness against *A. terreus*.
- **Bronchodilators:** Used to relieve airway obstruction.
- **Management of exacerbations**: Increase corticosteroid doses during flare-ups.

Monitoring: Regular assessment through total serum IgE levels, pulmonary function tests, chest imaging, and follow-up sputum cultures.

Our patient's ABPA was managed with this comprehensive approach, with good control of pulmonary symptoms during the follow-up period. A reduction in total serum IgE levels from 365.5 IU/mL to 180 IU/mL over six months, along with the absence of *A. terreus* in follow-up sputum cultures indicated good response to therapy.

Specific Considerations for *A. terreus*-induced ABPA

The identification of *A. terreus* as the causative agent of ABPA in our patient has significant therapeutic implications:

- **Antifungal selection**: *A. terreus* exhibits intrinsic resistance to amphotericin B and can show variable susceptibility to itraconazole [13]. Voriconazole is typically more active against *A. terreus* and was therefore selected as the antifungal agent in our patient.
- **Monitoring for breakthrough infections**: Given the potential for *A. terreus* to cause invasive infections, especially in patients on corticosteroids, close clinical monitoring was implemented during the perioperative period.
- **Environmental considerations**: Patient education regarding potential environmental sources of *A. terreus* (potted plants, soil, decaying vegetation) was provided to minimize re-exposure [3].
- **Adjunctive therapies**: Some studies suggest that nebulized amphotericin B may help reduce fungal burden in bronchial secretions, but this was not employed in our patient due to *A. terreus'* known resistance to amphotericin B [18].

Conclusion

- Meningioma should be considered in the differential diagnosis of dural-based lesions with characteristic radiological features, even in patients with concurrent systemic diseases.
- Comprehensive diagnosis of ABPA requires integration of clinical, radiological, immunological, and mycological criteria, including specific testing for sensitization to various Aspergillus species and definitive species identification through culture and microscopy.
    - *Aspergillus terreus* is an uncommon but important cause of ABPA, with unique morphological features (aleurioconidia, cinnamon-brown colonies) that aid in diagnosis [6].
    - The antifungal susceptibility profile of *A. terreus*, particularly its intrinsic resistance to amphotericin B, necessitates tailored therapy with agents like voriconazole [13].
    - The coexistence of ABPA and meningioma requires separate but coordinated management strategies, with attention to potential interactions between treatments.
- Normal CD3+ and CD4+ lymphocyte counts indicate intact cellular immunity, which is reassuring in a patient requiring

neurosurgical intervention with concurrent ABPA.

- Surgical resection remains the treatment of choice for symptomatic meningiomas, with the extent of resection being an important predictor of recurrence [10].

- A multidisciplinary approach involving neurosurgery, pulmonology, medical mycology, and immunology is essential for optimal management of patients with multiple medical conditions.

LIMITATIONS

- Several limitations should be acknowledged in this case report. First, molecular analysis of the meningioma was not performed, which might have provided insights into the genetic profile of the tumour and potential prognostic factors. Second, the follow-up period, while sufficient for early postoperative assessment, may be inadequate to determine long-term outcomes, particularly given that meningiomas can recur many years after initial resection.

- The relationship between ABPA and meningioma in this patient deserves further investigation, although it is likely coincidental. Long-term follow-up will be important to monitor both conditions independently.

- Additionally, antifungal susceptibility testing for the A. terreus isolate was not performed, which would have provided valuable information to guide antifungal therapy more precisely [8]. This highlights the importance of routine susceptibility testing for non-fumigatus Aspergillus species isolated from clinical specimens.

Author contribution:

- We declare that all listed authors have made substantial contributions to all of the following three parts of the manuscript:
  - research design, or acquisition, analysis or interpretation of data؛
  - drafting the paper or revising it critically؛
  - approving the submitted version.

We also declare that no-one who qualifies for authorship has been excluded from the list of authors.

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Research highlights:

- **Diagnostic Vigilance:** Meningioma should be considered in patients with dural-based lesions, even when systemic diseases like ABPA are present. Comprehensive diagnosis of ABPA requires integration of clinical, radiological, immunological, and mycological findings, with species-level identification critical for accurate management.

- **Microbiological and Therapeutic Insight:** *Aspergillus terreus*, though uncommon, is an important ABPA pathogen with distinctive morphological features and intrinsic resistance to amphotericin B, necessitating targeted antifungal therapy such as voriconazole.

- **Integrated Management Approach:** Coexistence of ABPA and intracranial meningioma demands coordinated care across specialties. Normal immune parameters support safe neurosurgical intervention, and surgical resection remains essential for symptomatic meningioma, with recurrence risk linked to extent of resection.

- **Multidisciplinary Coordination:** Optimal outcomes require collaboration among neurosurgery, pulmonology, mycology, and immunology teams for

comprehensive care of complex coexisting conditions.

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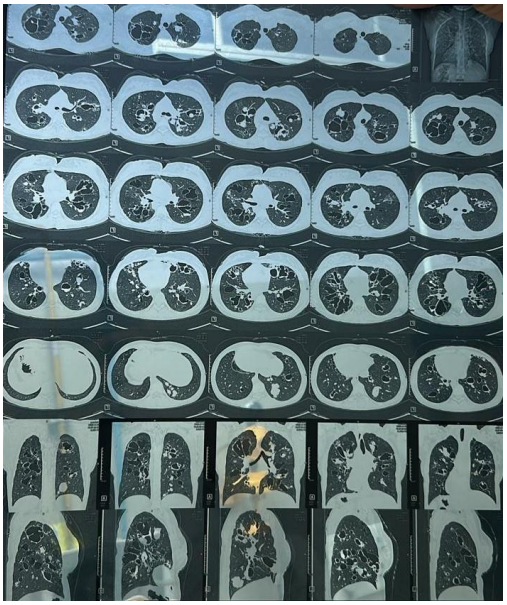

Figure 1: CECT thorax demonstrating bilateral cystic bronchiectasis with hyperdense mucoid impaction, characteristic of allergic bronchopulmonary aspergillosis (ABPA)**.**

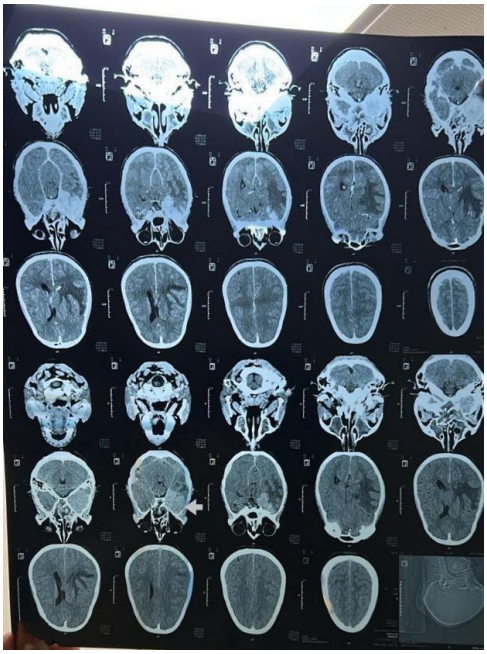

Figure 2: MRI brain demonstrating a well-defined, extra-axial, dural-based enhancing lesion consistent with a meningioma.

Site as: Goenka, S., Wanswett, W., Tyagi, S., Loomba, P., Jain, M., Sharma, A. Intracranial Meningioma in a Patient with ABPA: A Case Report and Literature Review. *Afro-Egyptian Journal of Infectious and Endemic Diseases*, 2025;15(3):343-353. doi: 10.21608/aeji.2025.388285.1481