



Case Report

Primary nursing for continuity of care in a patient with a rare suprasellar cavernous hemangioma: A case report

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ABSTRACT

Background & Aim: Suprasellar cavernous hemangioma is an exceptionally rare intracranial vascular malformation that can mimic more common sellar and suprasellar lesions. In patients with complex neurological conditions, continuity of nursing care may also be important for coordinating multidisciplinary management and supporting patient safety. This case report aims to describe the clinical presentation, diagnostic challenges, nursing care, and surgical management of suprasellar cavernous hemangioma.

Case Report: A 72-year-old woman presented with progressive right-eye visual impairment, followed by intermittent headaches, imbalance, gait instability, and recurrent falls. Brain magnetic resonance imaging revealed a heterogeneous suprasellar lesion compressing the optic chiasm and right cavernous sinus, while digital subtraction angiography showed no vascular abnormalities. A thrombosed aneurysm and other suprasellar masses were considered in the differential diagnosis. Surgical resection was performed, and histopathological examination confirmed a cavernous hemangioma. During hospitalization, primary nursing was implemented to coordinate individualized neurological and functional assessments, fall prevention, perioperative care, postoperative monitoring, patient and family education, multidisciplinary communication, and discharge planning.

Conclusion: This case highlights the diagnostic challenges of suprasellar cavernous hemangioma, particularly when progressive visual impairment is the initial and predominant manifestation. Persistent visual symptoms accompanied by headache, balance disturbances, or gait instability should prompt consideration of an intracranial cause and appropriate neuroimaging. The case also illustrates how Primary Nursing can provide a structured framework for continuity, individualized assessment, multidisciplinary communication, patient education, and safe transitions of care in patients undergoing complex neurosurgical treatment.

Introduction

Cavernous hemangioma, also called cavernous angioma or cavernoma, is a benign vascular anomaly made up of enlarged, thin-walled, blood-filled channels lined by endothelial cells, with no normal neural tissue between them (1). These lesions have slow blood flow and are prone to thrombosis, calcification, and bleeding. They are generally regarded as congenital malformations rather than true neoplasms, and both sporadic and inherited forms have been reported (2). They arise most often within the central nervous system, with an estimated population prevalence

of 0.4% to 0.8%, and many are found incidentally on imaging (3). Extra-axial cavernous hemangiomas are rare, and the suprasellar region is an especially uncommon site. Because this area contains the optic chiasm, pituitary stalk, hypothalamus, and adjacent vascular structures, any lesion there is clinically important (4). The true prevalence of suprasellar cavernous hemangioma is unknown, and current knowledge rests largely on case reports and small series.

Suprasellar cavernous hemangiomas typically present through compression of

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adjacent structures, causing visual impairment, headache, and endocrine disturbance, and sometimes sudden neurological decline from hemorrhage (5). On imaging, they can mimic more common suprasellar lesions such as pituitary adenoma, craniopharyngioma, meningioma, and hypothalamic glioma, which makes preoperative diagnosis difficult (6). Definitive diagnosis usually depends on histopathology, and surgery is challenging because of the lesion's vascularity and its proximity to critical neurovascular structures (7). This profound diagnostic uncertainty has direct and complex consequences for patient care. Patients with such lesions often undergo prolonged, multi-specialty evaluation (ophthalmology, endocrinology, neuroimaging, neurosurgery) before a diagnosis is reached. During this period, they face repeated referrals, uncertainty about their condition, progressive visual loss that affects safety and independence, and high-risk perioperative management. Routine functional nursing, which fragments care among different providers, often leads to the loss of crucial information during departmental handovers, meaning no single nurse holds a complete picture of the patient's evolving needs (8).

Primary Nursing is an inpatient care delivery model in which one identified nurse takes responsibility and accountability for planning and coordinating an individual patient's care throughout hospitalization, with other nurses contributing in that nurse's absence (9). Unlike community-based models, this approach supports comprehensive knowledge of the patient and continuity across stages of care, making it well suited for patients whose needs are complex and change over time. Systematic reviews have linked Primary Nursing with improved nursing-sensitive outcomes and patient experience (10), demonstrating better patient satisfaction, nursing competencies, and selected safety outcomes (11). To our knowledge, the application of Primary Nursing in patients with rare and diagnostically challenging neurosurgical conditions, such as suprasellar cavernous hemangioma, has not been previously described in Iran.

Therefore, we report a case of suprasellar cavernous hemangioma in an older woman whose presentation was dominated by progressive visual impairment and whose

diagnosis was delayed despite multiple ophthalmologic evaluations. We discuss the diagnostic and therapeutic challenges of this lesion in the context of existing literature, and describe how Primary Nursing was applied to maintain continuity and coordination of care throughout her evaluation and neurosurgical treatment.

Case report

A 72-year-old woman presented to an ophthalmologist with a chief complaint of progressive blurred vision in her right eye. Over time, the patient sought evaluation from more than ten ophthalmologists due to persistent visual disturbance, yet no definitive diagnosis was established. Concurrently, she began experiencing intermittent headaches, which gradually increased in frequency. In the later course of her illness, she also developed imbalance and gait instability, resulting in multiple falls.

Given the progression of neurological symptoms, the patient was referred to a neurosurgeon. Magnetic resonance imaging (MRI) of the brain revealed a lesion in the suprasellar region. Despite consulting several neurosurgeons, surgical intervention was initially deferred due to the high-risk nature of the lesion and its critical anatomical location.

Ultimately, the patient underwent neurosurgical resection by an experienced surgeon. Histopathological examination of the resected tissue confirmed the diagnosis of cavernous hemangioma. The patient's clinical course, including the progression of visual and neurological symptoms, ophthalmologic and neurosurgical evaluations, diagnostic imaging, surgical treatment, and subsequent nursing care, is summarized chronologically in Table 1.

Radiological findings

Computed tomography (CT) frequently shows indistinctly bordered lesions with foci of increased density (representing calcium or blood) within the brain parenchyma. The lesions do not enhance following contrast medium administration. CT scan could be considered a relatively sensitive diagnostic test, but it does not yield favorable specificity (12).

MRI is the preferred diagnostic tool for evaluation of cavernous malformations, mostly

due to its greater sensitivity to hemoglobin products with varying ages and greater contrast resolution. Especially, gradient-echo sequences are useful in the detection of these lesions (13). Cavernous hemangioma appears as a well-defined lesion with central reticulated heterogeneous signal intensity on routinely acquired T1- and T2-weighted sequences.

Methemoglobin (extracellular and intracellular) is responsible for hyperintense components within the lesion, while calcification and blood (acute and subacute) are responsible for central hypointensities. Deposition of hemosiderin appears as a peripheral low signal intensity rim on T2-weighted or gradient-echo sequences (14).

Table 1. Clinical course and major events of the patient

Time point	Clinical course and major events
Initial presentation	The patient, a 72-year-old woman, developed progressive blurred vision in the right eye and initially sought ophthalmologic evaluation.
Early ophthalmologic management	An ophthalmologic diagnosis was made. However, her visual symptoms did not improve.
Subsequent follow-up	Because of persistent visual disturbance, the patient sought further ophthalmologic evaluations and was assessed by more than ten ophthalmologists. Despite repeated consultations, a definitive cause of the progressive visual impairment was not established.
Later clinical course	The patient developed intermittent headaches, which gradually increased in frequency. She subsequently developed imbalance and gait instability, accompanied by multiple falls.
Neurosurgical referral	Because of the progression of visual and neurological symptoms, the patient was referred for neurosurgical evaluation.
Neuroimaging	Brain MRI demonstrated a heterogeneous suprasellar lesion with signal void and hypointense components, peripheral hemosiderin deposition, heterogeneous enhancement, displacement of the optic chiasm, and pressure effect on the right cavernous sinus.
Vascular evaluation and differential diagnosis	Because of the vascular characteristics and anatomical location of the lesion, a thrombosed aneurysm and other suprasellar lesions were considered in the differential diagnosis. Digital subtraction angiography showed no abnormal vascular findings.
Neurosurgical assessment	The patient was evaluated by several neurosurgeons. Surgical intervention was initially deferred because of the high-risk location of the lesion and its relationship with critical neurovascular structures.
Definitive treatment	The patient eventually underwent neurosurgical resection by an experienced neurosurgeon.
Histopathological diagnosis	Histopathological examination of the resected lesion confirmed cavernous hemangioma.
Hospital nursing care	During hospitalization, Primary Nursing was implemented. The designated primary nurse coordinated individualized neurological and functional assessment, fall prevention, perioperative preparation, postoperative monitoring, patient and family education, multidisciplinary communication, and discharge planning.
Postoperative period	Following resection, the patient received continued neurological and visual monitoring, symptom management, assisted mobilization, fall-prevention measures, and postoperative education.
Discharge planning	Before discharge, the primary nurse assessed functional status, mobility, visual limitations, medication knowledge, self-care ability, and family support and provided education regarding medications, postoperative care, follow-up, safety measures, and warning symptoms requiring urgent medical evaluation.
Discharge/follow-up	The patient was discharged following postoperative management, with follow-up and continuity of care instructions provided.

Since cavernous hemangiomas are originally low-flow lesions, digital subtraction angiography (DSA) reveals no abnormal lesion. The imaging studies revealed a heterogeneous signal lesion with signal void and hypointense foci in the suprasellar cistern, putting pressure on the optic chiasm and the cavernous sinus on the right side, with no obvious signs of internal carotid artery (ICA) encasement. Contrast administration provoked a heterogeneous avid enhancement. DSA revealed no abnormal findings.

Figure 1 In a 72-year old female, axial (A), sagittal (B), coronal (C) T2-weighted, axial (D), coronal (E) T1-weighted, axial (F), sagittal

(G), and coronal (H) post-contrast T1-weighted sequences revealed a heterogeneous signal lesion with signal void and hypointense foci (yellow arrows) in suprasellar cistern deviating optic chiasm superiorly (green arrow in E), and putting pressure effect on cavernous sinus at right side (light blue arrow in E) with no obvious signs of internal carotid arteries (ICAs, red arrows in E) compromise. There is a low signal intensity peripheral rim of hemosiderin deposit in axial (D) and coronal (E) T2-weighted images (orange arrow in D). Contrast administration demonstrated heterogeneous avid enhancement (F-H).

Nursing care and implementation of primary nursing

In this case, Primary Nursing facilitated the planning and coordination of individualized nursing care throughout the patient's hospitalization. The designated primary nurse coordinated the nursing care plan with the multidisciplinary team and addressed the patient's specific clinical needs across the preoperative, postoperative, and discharge phases. Given the patient's severe visual impairment and the complexity of her neurosurgical management, nursing priorities included neurological

assessment, visual impairment-related safety measures, fall prevention, assistance with daily activities, patient education, and discharge planning. The primary nurse coordinated these aspects of care to maintain continuity between different phases of hospitalization and ensure that nursing interventions were aligned with the patient's evolving needs. Other nurses contributed to implementing the established care plan when the primary nurse was unavailable. This description reflects the application of Primary Nursing in this individual case and does not constitute a formal evaluation of the model's effectiveness (15).

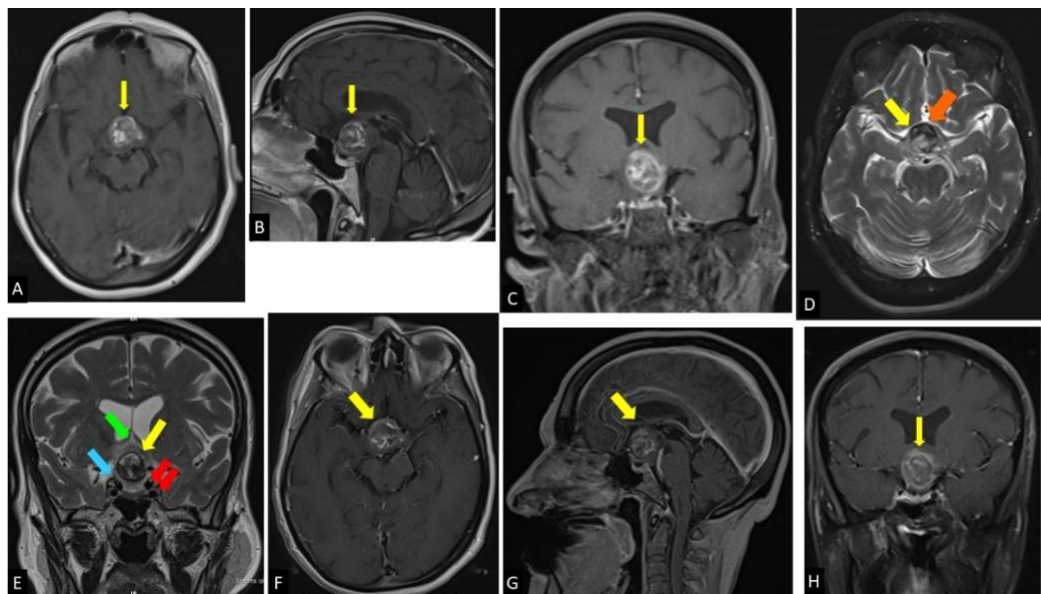


Figure 1. MRI imaging

Initial nursing assessment and identification of care priorities

At admission, the primary nurse established a comprehensive baseline assessment to facilitate recognition of subsequent changes in the patient's condition. The assessment included level of consciousness, orientation, visual complaints, headache characteristics, balance, gait, ability to perform activities of daily living, and history of falls. Particular attention was given to the patient's visual impairment and gait instability because the combination of these problems increased her risk of functional deterioration and falls.

The assessment also addressed the patient's experience of a prolonged and unsuccessful diagnostic pathway. The patient had consulted more than ten ophthalmologists before the intracranial lesion was identified. Therefore, in addition to physical and neurological

assessment, the primary nurse assessed the patient's understanding of her condition, concerns regarding neurosurgical treatment, emotional responses to diagnostic uncertainty, and the availability of family support. These findings were incorporated into the individualized nursing care plan. To strengthen the systematic assessment of the patient's condition, standardized clinical assessment tools were incorporated into the nursing care process. Fall risk was assessed using the Morse Fall Scale (MFS), with the patient's risk reassessed according to changes in mobility and clinical status. The results of the fall risk assessment were used to guide individualized fall-prevention measures, including assisted ambulation, environmental safety measures, and instructions to request assistance when mobilizing.

The patient's level of consciousness was assessed using the Glasgow Coma Scale (GCS) as part of routine neurological monitoring.

Neurological status was evaluated serially during the preoperative and postoperative periods, with attention to changes in level of consciousness and other neurological findings. Changes from the patient's baseline status were communicated promptly to the treating team. Pain intensity was assessed using the Visual Analog Scale (VAS). Pain scores were monitored during the hospitalization and used to guide nursing pain-management interventions and evaluate the patient's response to treatment.

Visual impairment was assessed by the ophthalmologist as part of the patient's ophthalmologic and neurological evaluation. The nursing team monitored the patient's reported visual symptoms and functional consequences of visual impairment, while the quantitative

ophthalmologic assessment was performed by the ophthalmology team. This distinction was maintained because visual acuity and other ophthalmologic parameters were outside the scope of routine nursing assessment.

In addition to clinical assessments, the patient's psychological response to the illness and her perception of the continuity of care were assessed through patient self-report. The patient was encouraged to express concerns, anxiety, questions, and perceptions regarding her prolonged diagnostic journey and the care received during hospitalization. Her responses were used to individualize education, communication, emotional support, and discharge planning. Measurable outcomes are reported in Table 2.

Table 2. Measurable outcomes during the preoperative, postoperative, and discharge phases

Assessment	Preoperative	Postoperative	Discharge
Morse Fall Scale	90	60	30
GCS*	15/15	15/15	15/15
VAS**	6/10	4/10	1/10
Visual assessment***	6/36	6/18	6/12
Anxiety level	High	low	low
Patient satisfaction	low	moderate	high
Gait	Ataxic	Normal	Normal
Orientation	To time, person, and place	To time, person, and place	To time, person, and place
Ability to perform activities of daily living	Partially dependent	Independent	Independent
Balance	Impaired	Normal	Normal

*GCS: Glasgow Coma Scale

**VAS: Visual Analog Scale

*** Visual acuity in the affected eye (Snellen chart)

Fall prevention and functional safety

Fall prevention was identified as a priority because of the patient's imbalance, gait instability, visual impairment, advanced age, and previous falls. The primary nurse implemented individualized safety measures, including assistance during transfers and ambulation, reduction of environmental obstacles, and instruction to request assistance before getting out of bed. The patient's family was educated regarding her mobility limitations and the need for appropriate assistance.

Mobility and balance were reassessed throughout hospitalization, particularly before and after surgery. The primary nurse monitored the patient's ability to transfer, stand, and ambulate and communicated clinically significant changes to the healthcare team. Rather than treating fall prevention as a routine

environmental intervention, the patient's specific visual and neurological limitations were incorporated into decisions regarding mobility assistance and supervision.

Neurological and visual assessment

Because of the lesion's proximity to the optic chiasm and other critical neurovascular structures, ongoing neurological and visual assessment was an important component of nursing care. The primary nurse monitored consciousness, orientation, visual complaints, motor and sensory function, headache, balance, and gait and compared subsequent findings with the documented baseline. The continuity provided by Primary Nursing allowed the patient's findings to be interpreted in relation to her previous condition rather than as isolated observations. Clinically meaningful changes

Primary nursing for continuity of care

were communicated promptly to the neurosurgical team for further assessment. This approach was particularly relevant during the perioperative period, when changes in neurological or visual status could require rapid evaluation.

Patient and family education and psychological support

The patient's prolonged diagnostic journey and uncertainty regarding the cause of her progressive visual impairment represented important educational and psychological concerns. The primary nurse maintained regular communication with the patient and family, provided explanations regarding diagnostic and treatment procedures, reinforced information provided by the medical team, and assessed the patient's understanding of the planned neurosurgical intervention.

Education was provided as an ongoing process rather than as a single intervention. The patient and family were encouraged to express concerns, ask questions, and report changes in neurological or visual symptoms. The primary nurse also provided information regarding mobility safety, postoperative monitoring, expected recovery, and the importance of follow-up care. Maintaining a consistent nurse-patient relationship provided the patient with a stable source of information during a period characterized by diagnostic uncertainty and major treatment decisions.

Preoperative nursing care

Before surgery, the primary nurse coordinated nursing preparation and ensured that the patient's baseline neurological, visual, and functional findings were documented. Particular attention was given to level of consciousness, visual status, motor and sensory function, headache, balance, gait, and mobility.

The patient and family were prepared for the perioperative process and postoperative monitoring. Education emphasized the importance of reporting new or worsening visual symptoms, changes in consciousness, weakness, severe headache, or other neurological changes. The primary nurse also communicated patient-specific concerns and baseline findings to the relevant members of the perioperative and neurosurgical teams.

Postoperative nursing care

Following neurosurgical resection, the primary nurse continued to coordinate individualized postoperative care. Neurological and visual status were monitored regularly, including consciousness, orientation, visual complaints, motor and sensory function, headache, balance, and gait. Postoperative findings were compared with the documented preoperative baseline to facilitate recognition of clinically meaningful changes. Postoperative nursing care also included pain and symptom management, monitoring of the surgical site, prevention of falls, safe mobilization, and surveillance for potential neurological deterioration and other postoperative complications. Because of the patient's previous gait instability and falls, mobilization was performed cautiously and with appropriate assistance. Functional status was reassessed as recovery progressed, and the patient and family received continued education regarding safe movement and postoperative precautions.

Multidisciplinary coordination

Coordination among healthcare professionals was a central component of Primary Nursing in this case. The patient's clinical pathway involved ophthalmology, radiology, neurosurgery, nursing, perioperative services, and the patient's family. The primary nurse served as a consistent point of communication and helped ensure that relevant information regarding the patient's neurological status, functional limitations, safety needs, education, and concerns was communicated across professional groups. This role was particularly important in the context of the patient's previous fragmented diagnostic pathway. By maintaining an updated understanding of the patient's clinical history and current condition, the primary nurse contributed to continuity of information and reduced the risk of important patient-specific information being lost during transitions between healthcare professionals and stages of care.

Discharge planning and continuity of care

Discharge planning was initiated during the postoperative period and was considered an

integral component of continuity of care. The primary nurse assessed the patient's mobility, functional status, visual limitations, ability to participate in self-care, medication knowledge, understanding of postoperative precautions, and availability of family support. The patient and family received education regarding prescribed medications, postoperative care, safe mobility, follow-up appointments, and symptoms requiring urgent medical attention, including worsening visual impairment, severe or sudden headache, altered consciousness, new weakness, seizures, repeated vomiting, or deterioration in balance or gait. Follow-up with the relevant medical services was coordinated to support continuity after discharge.

Overall, primary nursing in this case functioned as a framework for integrating individualized assessment, safety management, neurological monitoring, patient and family education, multidisciplinary communication, perioperative care, and discharge planning. The primary nurse's continuous involvement provided consistency across different stages of the patient's hospitalization and allowed changes in her condition to be interpreted in relation to an established baseline.

Discussion

The present case demonstrates the diagnostic complexity of suprasellar cavernous hemangioma and illustrates the potential importance of continuity of nursing care in patients with rare neurological lesions. The patient initially presented with progressive visual impairment and underwent an ophthalmologic procedure without improvement. Her subsequent consultations with numerous ophthalmologists without a definitive diagnosis highlight the difficulty of recognizing an intracranial cause when the initial presentation is predominantly visual. The later development of headache, imbalance, gait instability, and recurrent falls provided additional evidence that the patient's condition involved neurological rather than purely ophthalmologic pathology.

Suprasellar cavernous hemangiomas are uncommon lesions, and their clinical presentation depends largely on their relationship with surrounding structures. Visual symptoms are particularly important because

the optic chiasm and optic nerves are located in close proximity to the suprasellar cistern. Progressive visual impairment may therefore be the first manifestation of a lesion in this region. The present case is consistent with previously reported patients in whom visual dysfunction was a major presenting feature of suprasellar or optic pathway cavernous malformations (14).

The radiological findings in this patient were also important. The lesion demonstrated heterogeneous signal intensity, hypointense components, a peripheral hemosiderin rim, and heterogeneous enhancement. These characteristics can reflect the presence of blood products of different ages and are important clues to the diagnosis of cavernous malformation. MRI remains the preferred modality for evaluating cavernous malformations because of its sensitivity to blood degradation products. However, lesions located in unusual extra-axial sites may demonstrate atypical appearances and may mimic other intracranial masses.

The performance of CT angiography and digital subtraction angiography in this patient was clinically relevant because a thrombosed aneurysm was considered in the differential diagnosis. A thrombosed aneurysm may appear as a mass-like lesion and can represent a major surgical hazard if not recognized before intervention. Conversely, cavernous malformations are low-flow lesions and may not be visualized on conventional angiography. Therefore, the absence of an abnormal finding on DSA, together with the MRI characteristics and anatomical location, contributed to the diagnostic reasoning but did not replace histopathological confirmation (4).

The eventual decision to perform surgery was influenced by the progressive nature of the patient's symptoms and the mass effect of the lesion on the optic chiasm and adjacent structures. However, the initial reluctance of several neurosurgeons to operate illustrates the considerable risk associated with lesions in this anatomical region. The suprasellar area contains multiple structures that are essential for visual, endocrine, neurological, and vascular function. Consequently, surgical intervention requires careful risk-benefit assessment and should ideally be performed by an experienced surgical team (17).

Although the diagnosis and surgical management were the central medical aspects of this case, the patient's experience also demonstrates why continuity of nursing care can be important in rare and complex conditions. The patient had experienced a prolonged period of uncertainty, repeated specialist consultations, unsuccessful treatment, progressive symptoms, and eventually a complex neurosurgical intervention. These circumstances may result in anxiety, confusion, reduced confidence in healthcare services, and difficulty understanding the rationale behind different diagnostic and therapeutic decisions.

The implementation of Primary Nursing provided a structured response to these challenges. Rather than receiving nursing care as a series of disconnected tasks performed by different individuals, the patient had a designated nurse who maintained an ongoing understanding of her clinical condition and coordinated care across different stages. In this case, the primary nurse established and documented baseline visual, neurological, and functional findings and subsequently monitored these parameters during the preoperative and postoperative periods. Subsequent assessments were compared with the documented baseline, and clinically meaningful findings were communicated to the neurosurgical team. Thus, the case demonstrates the use of continuity and baseline-informed assessment as components of Primary Nursing; however, it does not establish that the primary nurse detected a clinical change that would otherwise have been missed by other healthcare professionals.

Primary Nursing also facilitated communication between the patient and the multidisciplinary healthcare team. In complex clinical situations, patients may receive information from multiple professionals and may have difficulty integrating different explanations. The primary nurse can help clarify information, reinforce education, identify misunderstandings, and ensure that patient concerns are communicated to the appropriate professional. In this case, this role was particularly relevant because the patient's diagnostic journey had already involved numerous healthcare professionals before the definitive diagnosis was established (8).

The importance of continuity is also relevant after surgery. Neurosurgical recovery

does not end with the surgical procedure. Patients may require ongoing neurological observation, mobility assistance, education, psychological support, medication management, and preparation for follow-up. By remaining involved across the perioperative and discharge phases, the primary nurse can help ensure that information and care priorities are transferred consistently.

The existing literature provides some support for the use of Primary Nursing in improving continuity and selected nursing-sensitive outcomes. A systematic review found that primary nursing may contribute to improved nursing-sensitive outcomes and patient experiences and allows nurses to develop greater knowledge of individual patients and their families (9). Other studies have reported improvements in patient satisfaction and selected outcomes following implementation of Primary Nursing. However, the evidence remains heterogeneous, and the present case cannot establish that Primary Nursing caused any specific clinical outcome (11-16).

The principal contribution of this case report is therefore not to demonstrate the effectiveness of Primary Nursing statistically, but to illustrate how the model can be applied to a patient with a rare and complex neurosurgical condition. The case suggests that Primary Nursing may be particularly appropriate when patients experience prolonged diagnostic pathways, multiple specialist consultations, complex surgery, functional limitations, and substantial educational and emotional needs (18).

From a nursing perspective, this case also highlights the importance of recognizing the neurological significance of persistent visual symptoms, particularly when they are accompanied by headache, balance disturbances, gait instability, or recurrent falls. Nurses are often in a position to identify changes in symptoms and functional status over time, and continuity of nurse-patient contact may enhance the ability to recognize clinically meaningful changes.

Nevertheless, this report has limitations. First, it describes a single patient and cannot establish the effectiveness of Primary Nursing as an independent intervention. Second, the rarity of suprasellar cavernous hemangioma limits the possibility of comparing outcomes

across large patient populations. Finally, the nursing outcomes described in this report are primarily qualitative and descriptive.

Conclusion

Suprasellar cavernous hemangioma is a rare and diagnostically challenging lesion that may initially present with progressive visual impairment and can mimic more common ophthalmologic, sellar, suprasellar, or vascular disorders. In the present case, the diagnosis was delayed despite repeated ophthalmologic consultations, and the subsequent development of headache, imbalance, gait instability, and recurrent falls ultimately led to neuroimaging and identification of the suprasellar lesion. Additional vascular imaging was required because a thrombosed aneurysm was considered in the differential diagnosis, and definitive diagnosis was ultimately established by histopathological examination following surgical resection.

The case also demonstrates the potential value of Primary Nursing in the management of patients undergoing complex neurosurgical care. Continuity provided by a designated primary nurse facilitated ongoing neurological and functional assessment, fall prevention, patient and family education, psychological support, multidisciplinary communication, perioperative monitoring, and discharge planning. Although the findings of a single case cannot establish the effectiveness of Primary Nursing, this experience suggests that continuity-based nursing models may be particularly useful for patients with rare neurological diseases whose care involves prolonged diagnostic uncertainty, multiple specialists, complex surgical treatment, and ongoing rehabilitation and follow-up.

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Conflict of interest

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References

- Alexiou GA, Lampros M, Gavra MM, Vlachos N, Ydreos J, Boviatsis EJ. Primary intraosseous cavernous hemangioma of the cranium: A systematic review of the literature. *World Neurosurgery*. 2022;164:323-9.
- Goel A, Shenoy A, Shah A, Goel N, Vutha R, Hawaldar A. Cavernous hemangioma of cavernous sinus: an outcome report of 45 surgically treated patients. *World Neurosurgery*. 2022;159:381-9.
- Caton MT, Karsonovich T, Shenoy VS. Cerebral Cavernous Malformations. [Updated 2025 Jan 21]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK538144/>
- Lubomirsky B, Jenner ZB, Jude MB, Shahlaie K, Assadsangabi R, Ivanovic V. Sellar, suprasellar, and parasellar masses: Imaging features and neurosurgical approaches. *The Neuroradiology Journal*. 2022;35(3):269-83.
- Filce C, Sesnan G, McEniery JC. Tumors of the sellar and suprasellar regions. *Neuroimaging Clinics of North America*. 2026;36(1):107-25.
- Kuroedov D, Cunha B, Pamplona J, Castillo M, Ramalho J. Cerebral cavernous malformations: typical and atypical imaging characteristics. *Journal of Neuroimaging*. 2023;33(2):202-17.
- Liberale C, Rozell-Shannon L, Moneghini L, Nocini R, Tombris S, Colletti G. Stop calling me cavernous hemangioma! A literature review on misdiagnosed bony vascular anomalies. *Journal of Investigative Surgery*. 2022;35(1):141-50.
- Fuseini A-G, Aniteye P, Kofi-Helegbe G. Barriers and facilitators related to the health care system in spinal cord injury. *Nursing Practice Today*. 2018;5(3):335-46.
- Gonçalves I, Mendes DA, Caldeira S, Jesus É, Nunes E. The primary nursing care model and inpatients' nursing-sensitive outcomes: A systematic review and narrative synthesis of quantitative studies. *International Journal of Environmental Research and Public Health*. 2023;20(3):2391.
- McCullough K, Andrew L, Genoni A, Dunham M, Whitehead L, Porock D. An examination of primary health care nursing service evaluation using the Donabedian model: A systematic review. *Research in Nursing & Health*. 2023;46(1):159-76.
- Lukewich J, Martin-Misener R, Norful AA, Poitras M-E, Bryant-Lukosius D, Asghari S, et al. Effectiveness of registered nurses on patient outcomes in primary care: A systematic review. *BMC Health Services Research*. 2022;22(1):740.
- Flemming K, Radford JG, Reichard R, Klaas J, Braksick S, Cogswell P, et al. Clinical and radiologic distinctions between familial cavernous malformation syndrome and cerebral amyloid angiopathy. *Acta Neurochirurgica*. 2024;166(1):508.

13. Comandao M-VP, Concepcion CO. Familial cerebral cavernous malformation in a Filipino family. *Health Sciences Journal*. 2024; 6(4):102-6.
14. Demir MK, Kılıc D, Zorlu E, Kılıc T. Giant intracranial cavernous malformations: A review on magnetic resonance imaging characteristics. *Indian Journal of Radiology and Imaging*. 2024;34(3):511-21.
15. Nabi Foodani M, Amouei K, Negarandeh R. Nursing residency program: A solution for overcoming transition challenges for newly graduated nurses. *Nursing Practice Today*. 2025;12(1):1-5.
16. Xu S, Yang L. Diagnosis and treatment status of suprasellar optic pathway cavernous malformations. *Journal of International Medical Research*. 2023;51(12):03000605231219167.
17. Subenja S, Phairintr P, Noiphithak R. Cognitive impairment associated with suprasellar cavernous malformation: A case report and review of the literature. *Surgical Neurology International*. 2025;16:111.
18. Pearson A, editor. *Primary nursing: Nursing in the Burford and Oxford nursing development units*. London: Taylor & Francis; 2025 Sep 17.