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Case Report

Chronic posterior fossa subdural hematoma: a case report of endovascular management and systematic review

Hematoma subdural crónico de la fosa posterior: reporte de un caso de manejo endovascular y revisión sistemática

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ABSTRACT

Chronic subdural hematoma (CSDH) commonly affects elderly patients, but posterior fossa involvement is exceedingly rare, representing less than 1% of cases. Due to the restricted infratentorial space, even small hematomas may cause neurological deterioration. To systematically review the management of posterior fossa CSDH in adults and report a rare case treated with middle meningeal artery (MMA) embolization. PubMed and Scopus searches identified 106 articles. After duplicate removal and eligibility screening, 20 studies comprising 21 patients were included. Clinical presentation, imaging findings, treatment, and outcomes were analyzed. Mean patient age was 64.2 years, with female predominance (76%). Headache (76%), ataxia (57%), and vertigo (33%) were the most common symptoms. Surgical evacuation, mainly via suboccipital craniotomy or burr-hole drainage, was performed in 81% of cases, while conservative treatment was used in 14%. Only one previous case reported successful MMA embolization. Outcomes were generally favorable, without recurrence. We also report a 57-year-old woman with multiple myeloma and severe thrombocytopenia who developed spontaneous supratentorial and posterior fossa CSDH. Due to surgical contraindications, MMA embolization was performed, leading to complete radiological resolution and full neurological recovery. Posterior fossa CSDH is rare and potentially life-threatening, requiring prompt diagnosis and individualized treatment.

Keywords: *chronic subdural hematoma; posterior fossa; infratentorial; middle meningeal artery; embolization; neurosurgery.*

RESUMEN

El hematoma subdural crónico (HSDC) afecta principalmente a pacientes ancianos, pero la afectación de la fosa posterior es extremadamente rara, representando menos del 1% de los casos. Debido al espacio infratentorial restringido, incluso pequeños hematomas pueden causar deterioro neurológico. Revisar sistemáticamente el manejo del HSDC de fosa posterior en adultos y reportar un caso tratado con embolización de la arteria meníngea media (AMM). Las búsquedas en PubMed y Scopus identificaron 106 artículos. Tras eliminar duplicados y aplicar criterios de elegibilidad, se incluyeron 20 estudios con 21 pacientes. Se analizaron presentación clínica, hallazgos de imagen, tratamiento y resultados. La edad media fue de 64,2 años, con predominio femenino (76%). Los síntomas más frecuentes fueron cefalea, ataxia y vértigo. La evacuación quirúrgica fue el tratamiento principal (81%), mientras que el manejo conservador se utilizó en el 14%. Solo un caso previo describió embolización exitosa de la AMM. Además, presentamos una mujer de 57 años con mieloma múltiple y trombocitopenia grave tratada exitosamente mediante embolización. El HSDC de fosa posterior es una entidad rara y potencialmente grave que requiere diagnóstico precoz y manejo individualizado.

Palabras clave: *hematoma subdural crónico; fosa posterior; infratentorial; arteria meníngea media; embolización; neurocirugía.*

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1 INTRODUCTION

Chronic subdural hematoma (CSDH) is a frequent entity in neurosurgical practice, representing one of the most common indications for neurosurgical procedures in adults, particularly in elderly patients with a history of falls or those under anticoagulant or antiplatelet therapy[1,2]. Its usual location is on the cerebral convexity, where the relatively compliant subdural space allows for the progressive accumulation of degraded blood, manifesting with insidious symptoms such as headache, focal neurological deficits, and cognitive impairment[3].

Involvement of the posterior fossa by CSDH is exceptional, accounting for less than 1% of cases reported in the literature[4]. This region is characterized by a restricted anatomical space and the presence of critical structures such as the brainstem, cerebellum, and ventricular system, which increases the likelihood of severe complications, including direct neural compression and obstructive hydrocephalus[5,6].

The rarity of this presentation poses significant diagnostic and therapeutic challenges, as its nonspecific clinical picture may resemble other posterior fossa conditions such as tumors, empyema, or cerebellar infarctions, often resulting in delayed diagnosis[7]. Therefore, a systematic review is needed to synthesize the existing literature on posterior fossa CSDH, to consolidate accumulated clinical experience, and to critically assess the methodological quality of published studies. Additionally, the progressive aging of the population and the increasing use of anticoagulant and antiplatelet agents suggest that the overall incidence of CSDH, including in uncommon locations, is likely to rise[8,9].

The present study aims to systematically review the management of chronic subdural hematoma in the posterior fossa in adult patients. While comparative evidence is limited, open surgical techniques remain the most common treatment. Endovascular strategies, such as middle meningeal artery embolization, have emerged as a minimally invasive option for selected high-risk or recurrent cases. This review seeks to clarify current therapeutic alternatives and to highlight the potential role of endovascular approaches in this rare but clinically relevant condition.

2 METHODS

The studies included in this systematic review reported the treatment of chronic subdural hematoma in the posterior fossa. Studies involving only acute subdural hematomas, those that did not clearly specify the location as being the posterior fossa, as well as those that did not describe the therapeutic technique used, were excluded. Articles that presented insufficient clinical or radiological data for analysis, lacking relevant clinical outcomes or follow-up data were excluded. Additional exclusion criteria included studies in pediatric patients. This approach ensures the inclusion of studies aligned with the techniques and objectives of the present analysis, maintaining methodological rigor. This study was not registered in PROSPERO or any other database, and methodology was conducted in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure transparency and reproducibility.

This review did not include a formal assessment of risk of bias or study quality using standardized tools. The included studies were highly heterogeneous in design and reporting, consisting predominantly of case reports and retrospective series, which limits the applicability of uniform appraisal tools. Nevertheless, studies were selected based on the clarity of their methods, description of therapeutic approaches, and availability of clinical outcomes, aiming to maintain a minimum standard of quality and relevance.

A literature search was conducted to identify relevant studies, using the following search terms: ("chronic subdural hematoma" OR "chronic subdural hematomas" OR cSDH) AND ("posterior fossa" OR "posterior cranial fossa" OR infratentorial OR "posterior compartment"). The search was performed in several databases, including PubMed and Scopus database.

Two independent reviewers screened titles, abstracts, and full-text articles to determine study eligibility. Data were extracted from the selected studies using a structured form, covering the following variables: study design, patient demographics, procedure specifications, outcomes, and follow-up period. Disagreements between reviewers were resolved through discussion or, when necessary, consultation with a third reviewer.

The systematic search identified a total of 106 articles: 43 from PubMed and 63 from Scopus. After the exclusion of 37 duplicate records, 69 articles were screened. Title and abstract evaluation led to the selection of 26 articles for full-text review. Four articles could not be accessed. After full-text assessment, three articles were excluded for different reasons: one addressed mainly supratentorial hematomas, with infratentorial cases managed only conservatively and without detailed description, preventing the extraction of relevant information; one included a pediatric/juvenile population and predominantly supratentorial location; and one addressed subacute subdural hematomas and not chronic ones.

In the end, 19 studies met the previously established eligibility criteria and were included in the final analysis (Figure 1), as presented in Table 1.

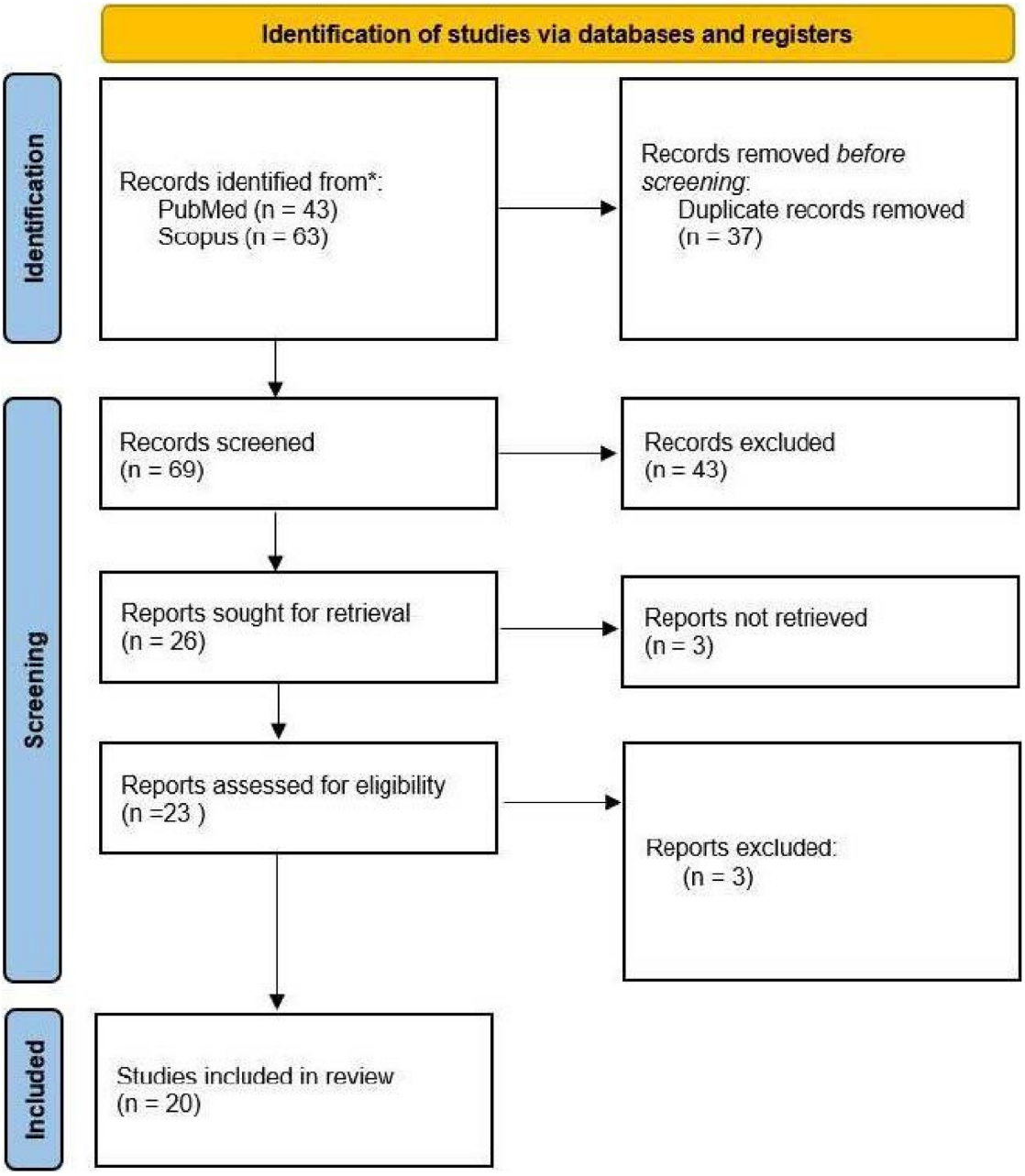

Figure 1. PRISMA Flow diagram of the included studies.

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Table 1. Summary of included studies on posterior fossa chronic subdural hematoma.

AUTHOR/YEAR	Nº AGE SEX	SIGNS AND SYMPTOMS	LOCATION AND LATERALITY OF CSDH	HYDROCEPHALUS	INTERVENTION	TECHNIQUE DETAILS	CLINICAL AND RADIOLOGICAL OUTCOME	RECURRENCE	COMPLICATIONS	FOLLOW-UP DURATION
Dlaka et al. (2023)[10]	1 Patient, 71 year, M	Progressive headache and ataxia with gait disturbance	Bilateral infratentorial	Yes	Surgical	Evacuation of the hematoma by bilateral burr-hole	Postoperative uneventful; Follow-up head CT showed resolution of the hematoma and hydrocephalus.	No	None reported	1 week
Zemel (2022)[3]	1 Patient, 66 year, F	Progressive headache, dizziness, vertigo, vomiting, gait ataxia	Infratentorial. Right cerebellar hemisphere	No	Surgical	Burr-hole drainage. Subdural drain placed for 24h	Complete clinical recovery within a few days; postoperative head CT showed hematoma resolution	No	None reported	1 week
Nomura(2022)[11]	1 Patient, 70 year, F	Headache progressive, GCS 8, total aphasia	Bilateral infratentorial Right supratentorial CSDH	No	Conservative treatment of CSDH in the posterior fossa Surgical for supratentorial CSDH	Burr-hole under local anesthesia; dark-colored hematoma with thickened membrane evacuated; no intervention on infratentorial CSDHs, which regressed spontaneously	Recovered consciousness and resolved neurological symptoms 1 day after surgery; MRI: supratentorial infratentorial CSDHs stable initially, then regressed; complete radiological resolution at 1 month	No	None reported	1 month
Mochizuki et al. (2018)[5]	1 Patient, 71 year, F	Cerebellar ataxia, vomiting, and GCS 13	CSH in the left infratentorial and supratentorial compartments	Yes	Surgical	via suboccipital craniotomy for the posterior fossa CSDH to resolve brain stem compression	Recovered uneventfully and was discharged on the 12th postoperative day without neurological deficits. Postoperative head CT revealed resolution of the CSDH infratentorial.	No	None reported	At 1 year, CSDH had not recurred.
Takemoto et al. (2016)[12]	1 Patient, 69 year, F	Nausea and headache, vomiting, progressive drowsiness and ataxia	Bilateral infratentorial in the cerebellar hemispheres	Yes	Surgery	Bilateral suboccipital craniectomy	Clinical improvement and postoperative CT/MRI confirmed hematoma removal	No	Intraoperative bleeding from a prominent occipital sinus, not identified on preoperative imaging, was controlled with hemoclips.	Not specified
Yamauchi et al. (2024)[13]	1 Patient, 59 year, M	Left-sided hearing loss, headache, right upper limb hemiplegia	Left-sided CSDH supratentorial and infratentorial	No	Embolization	Embolization of the posterior branch of the MMA with 30% n-butyl-2-cyanoacrylate; embolization of the main trunk with six 2 mm × 2 cm Hilal coils.	Immediate improvement in hearing and motor symptoms	No	None reported	Complete radiological resolution up to 105 days

CSDH: Chronic Subdural Hematoma; CT: Computerized tomography; MRI: Magnetic Resonance Imaging; GCS: Glasgow Coma Scale; MMA: Middle Meningeal Artery.

Table 1. Continued...

AUTHOR/YEAR	Nº AGE SEX	SIGNS AND SYMPTOMS	LOCATION AND LATERALITY OF CSDH	HYDROCEPHALUS	INTERVENTION	TECHNIQUE DETAILS	CLINICAL AND RADIOLOGICAL OUTCOME	RECURRENCE	COMPLICATIONS	FOLLOW-UP DURATION
Stendel (2002)[14]	1 Patient, 70 year, F	Progressive dizziness, vertigo and gait ataxia.	Bilateral infratentorial	No	Surgery	Evacuation of the hematoma through burr-hole trepanations using perforator cannulas.	The patient recovered well from surgery	No	None reported	Patient died 4 months after surgery due to heart failure.
Inoue (2019)[15]	1 Patient, 64 year, M	Headache, nausea worsened and GCS 14	Bilateral posterior fossa CSDH Also had stable supratentorial left CSDH	Yes	Surgery	Posterior fossa burr-hole near the transverse-sigmoid junction; hematoma evacuated and cavity irrigated	Rapid clinical improvement postoperatively; disappearance of posterior fossa CSDH and hydrocephalus on CT	No	None reported	Head CT scans 3 months after surgery demonstrated no recurrence
Kochi (2018)[16]	1 Patient, 86 year, F	Headache progressive, mild ataxia in left upper and lower limbs	Left posterior fossa	No	Surgery	Small left suboccipital craniotomy; evacuation of subdural clot	Immediate symptom improvement; sufficient cerebellar decompression on head CT; discharged without deficits	No	None reported	6 months
Costa (2004)[17]	1 Patient, 64 year, F	Sudden headache, gait disturbance, drowsiness and urinary incontinence.	Right posterior fossa extra-axial hematoma and a small, contiguous intraparenchymal right cerebellar hematoma in the subacute phase	Yes	Surgery	A suboccipital right craniectomy was performed and a typical CSDH was drained after opening the dura-mater.	In the postoperative period, the patient improved rapidly and was discharged without neurological deficits.	No	None reported	The postoperative head CT was unremarkable.
Kurisu et al. (2012)[18]	1 Patient, 86 year, F	Consciousness disturbance, tetraparesis, drowsiness and vomiting	Bilateral infratentorial And simultaneous occurrence of supratentorial CSDHs with not communicating	No	Surgery	Evacuation of CSDHs from the bilateral posterior fossae through bilateral trepanations with burr hole and decompression of the brainstem.	Immediate improvement in consciousness and tetraparesis; postoperative MRI showed disappearance of posterior fossa CSDHs and reduction of supratentorial hematomas	No	None reported	The patient was discharged one month after the operation for further rehabilitation.

CSDH: Chronic Subdural Hematoma; CT: Computerized tomography; MRI: Magnetic Resonance Imaging; GCS: Glasgow Coma Scale; MMA: Middle Meningeal Artery.

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Table 1. Continued...

AUTHOR/YEAR	Nº AGE SEX	SIGNS AND SYMPTOMS	LOCATION AND LATERALITY OF CSDH	HYDROCEPHALUS	INTERVENTION	TECHNIQUE DETAILS	CLINICAL AND RADIOLOGICAL OUTCOME	RECURRENCE	COMPLICATIONS	FOLLOW-UP DURATION
Izumihara (1993)[19]	2 patients: 72F; 70M	Mild headache, left leg weakness, left hemiparesis	Infratentorial bilateral dorsal cerebellum; also had supratentorial right temporo-parietal	No	Surgery	Burr hole drainage (only supratentorial); posterior fossa CSDH managed conservatively	Infratentorial CSDH resolved spontaneously by 2 months; remained asymptomatic	No	None reported	2 months
		Gait disturbance, right arm weakness, right hemiparesis, mild dysarthria	Infratentorial left dorsal cerebellum; Supratentorial left fronto-temporo-parietal + right parietal			Craniotomy (supratentorial); posterior fossa CSDH treated conservatively	Infratentorial CSDH asymptomatic; resolved spontaneously in 2 months			
Berhoum (2007)[20]	1 Patient, 38 year, F	Dizziness, progressive and intense headache, intense vertigo, cerebellar signs and gait ataxia associated with bilateral papilledema.	Right subdural hematoma in the convexity of the cerebellar hemisphere	No	Surgery	Right suboccipital craniectomy. A chocolate-colored fluid gushed out under pressure. The subdural space was flushed with warm saline and no drain was placed.	The patient's clinical symptoms improved immediately after surgery. The dizziness disappeared completely, and the gait ataxia disappeared. The postoperative period was uneventful, and the patient was discharged after 7 days.	No	None reported	2 months later, the patient developed acute intestinal bleeding and subsequently died at another institution as a result of extraneural hemorrhagic complications.
Horvath(1964)[21]	1 Patient, 29 year, F	Headache, vomiting, dizziness with, diplopia due to abducens palsy, right-sided cerebellar signs and nystagmus	Posterior Cranial Fossa, right side	No	Surgery	The hematoma was evacuated with a median approach to the right posterior fossa.	The postoperative course was uneventful.	No	None reported	1 month after surgery, the patient presented with only mild right-sided neocerebellar syndrome, with right-sided terminal intention and nystagmus
Takami (2013)[22]	1 Patient, 83 year, F	Headache, afasia, mild dysdiadochokinesia on both sides. Using oral anticoagulants due to atrial fibrillation and aplastic anemia.	Bilateral thick hematoma in the posterior fossa	Yes	Conservative	Platelets were administered daily due to severe thrombocytopenia, and the anticoagulant was discontinued.	Her symptoms gradually improved within a week of admission. Serial CT scans demonstrated a reduction in the hematoma and improvement in the hydrocephalus.	No	None reported	Two weeks after admission, CT scans showed near-complete resolution of the hematoma.

CSDH: Chronic Subdural Hematoma; CT: Computerized tomography; MRI: Magnetic Resonance Imaging; GCS: Glasgow Coma Scale; MMA: Middle Meningeal Artery.

Table 1. Continued...

AUTHOR/YEAR	Nº AGE SEX	SIGNS AND SYMPTOMS	LOCATION AND LATERALITY OF CSDH	HYDROCEPHALUS	INTERVENTION	TECHNIQUE DETAILS	CLINICAL AND RADIOLOGICAL OUTCOME	RECURRENCE	COMPLICATIONS	FOLLOW-UP DURATION
Hirbo (2022) [23]	1 Patient, 50 year, F	Headacheprogressive, decreased mental activity	Bilateral supra- and infratentorial chronic subdural collection.	No	Conservative (infratentorial hematoma) and surgery (supratentorial hematoma)	The infratentorial hematoma was treated conservatively, as it was considered asymptomatic. A bilateral burr hole and evacuation of the supratentorial hematoma were performed.	Postoperatively, consciousness and weakness improved, but the patient complained of severe global headache, and a CT scan revealed a significant residual supratentorial chronic subdural hematoma on the right side.	Yes	CT scan revealed a significant residual supratentorial chronic subdural hematoma on the right side. Therefore, under local anesthesia and light sedation, a right parietal burr hole was made and the hematoma was removed.	Postoperatively, the patient was conscious and the headache disappeared.
Sho et al. (2002)[23]	1 Patient, 72 year, F	Trigeminal neuralgia, facial palsy, and truncal ataxia	Posterior fossa, right side	Not reported	Surgery	Right suboccipital craniectomy with aspiration of brownish-red fluid collection	Satisfactory postoperative course with relief of preoperative symptoms	No	None reported	Not specified
Zemel et al. (2022)[24]	1 Patient, 66 year, F	Headache, vertigo, and gait ataxia for 3 weeks.	Infratentorial, right cerebellar hemisphere.	Not reported	Surgery	Evacuation of the hematoma by burr-hole trephination followed by saline irrigation of the subdural space.	Complete resolution of symptoms within a few days; postoperative head CT showed normal and resolution of haematoma	No	None reported	Not specified
Miyamoto J et al. (2003)[25]	1 Patient, 64 year, M	Progressive headache and vomiting for 1 month.	Bilateral supratentorial and infratentorial left	Not reported	Surgery	Bilateral burr-hole irrigation for supratentorial CSDH; left suboccipital craniotomy for infratentorial CSDH.	Rapid symptom improvement; right infratentorial CSDH resolved spontaneously after surgery; MRI at 3 months showed no recurrence.	No	None reported	3 months

CSDH: Chronic Subdural Hematoma; CT: Computerized tomography; MRI: Magnetic Resonance Imaging; GCS: Glasgow Coma Scale; MMA: Middle Meningeal Artery.

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3 CASE PRESENTATION

A 57-year-old female patient initially presented with severe headache and dizziness, associated with significant thrombocytopenia. A few days later, she returned with persistent symptoms and critical thrombocytopenia (1,000/mm^3). Her medical history included IgG/kappa multiple myeloma under hematology follow-up since late 2022, as well as well-controlled hypothyroidism. On admission, she was conscious, oriented, afebrile and pale on ectoscopy. Neurological examination revealed no focal deficits. Laboratory workup showed anemia, leukopenia with profound neutropenia (absolute neutrophil count of 131/mm^3), and severe thrombocytopenia (1,000–19,000/mm^3).

Brain MRI (Figure 2), obtained seven days after symptom onset, demonstrated a left chronic subdural hematoma with frontotemporoparietal extension, also involving the ipsilateral posterior fossa.

Given the critical condition and the contraindication to craniotomy due to severe thrombocytopenia, an endovascular approach was selected. Embolization of the left middle

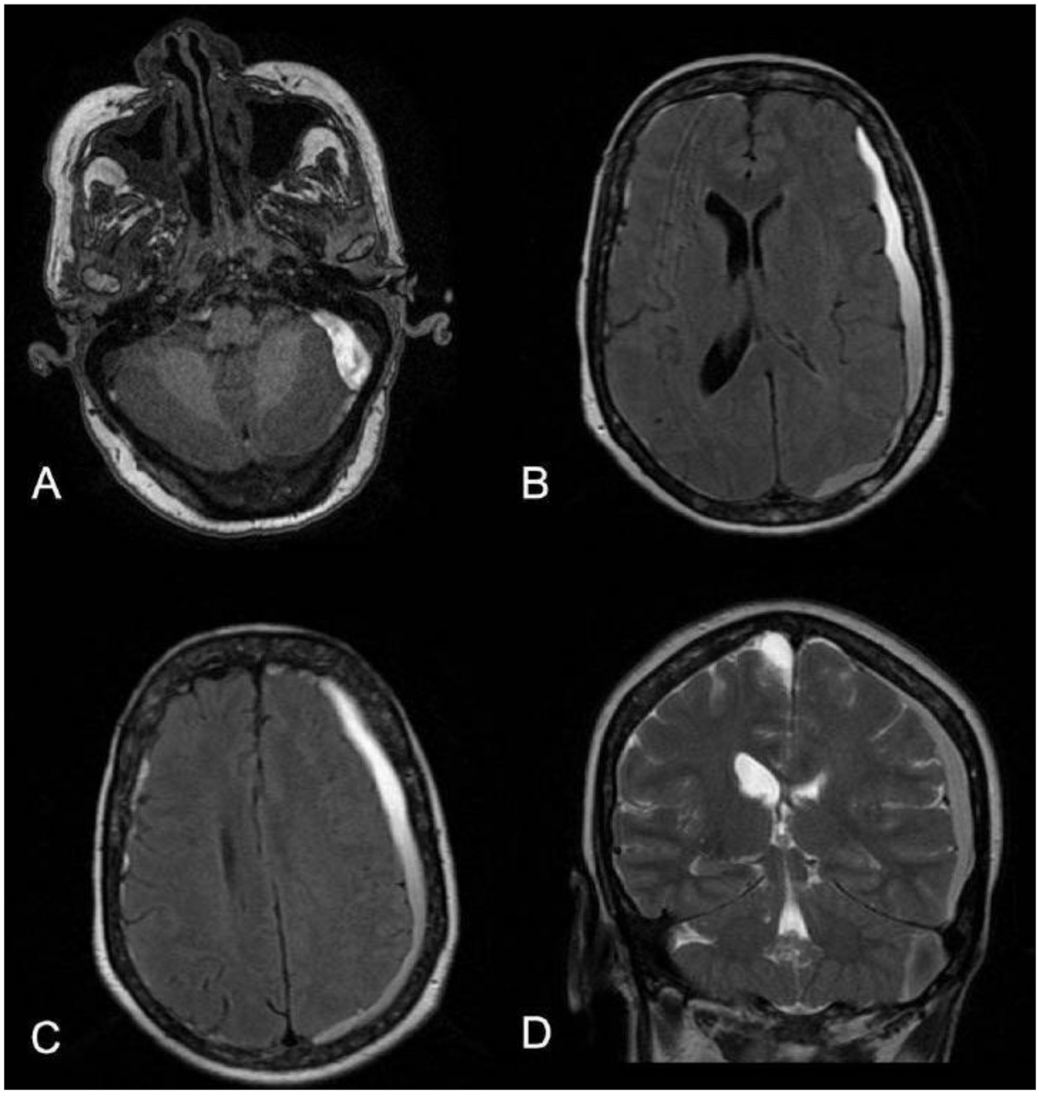

Figure 2. Chronic subdural hematoma on MRI. (A–C) Axial FLAIR sequences and (D) coronal T2-weighted image demonstrate chronic subdural hematoma in both supratentorial and infratentorial compartments.

meningeal artery (MMA) was successfully performed under local anesthesia and sedation, without intraoperative complications. Follow-up imaging demonstrated progressive reduction of the subdural collection, as shown in Figures 2 and 3. At the one-month control, the patient was asymptomatic, with complete resolution of the posterior fossa hematoma and full neurological recovery, confirming total radiological reabsorption on computed tomography.

This case illustrates a rare occurrence of spontaneous posterior fossa subdural hematoma in an immunocompromised patient with relapsed multiple myeloma, severe thrombocytopenia, and concomitant SARS-CoV-2 infection. Favorable clinical evolution was achieved following endovascular embolization of the middle meningeal artery, although prognosis remains guarded and dependent on the underlying hematologic disease (Figure 4).

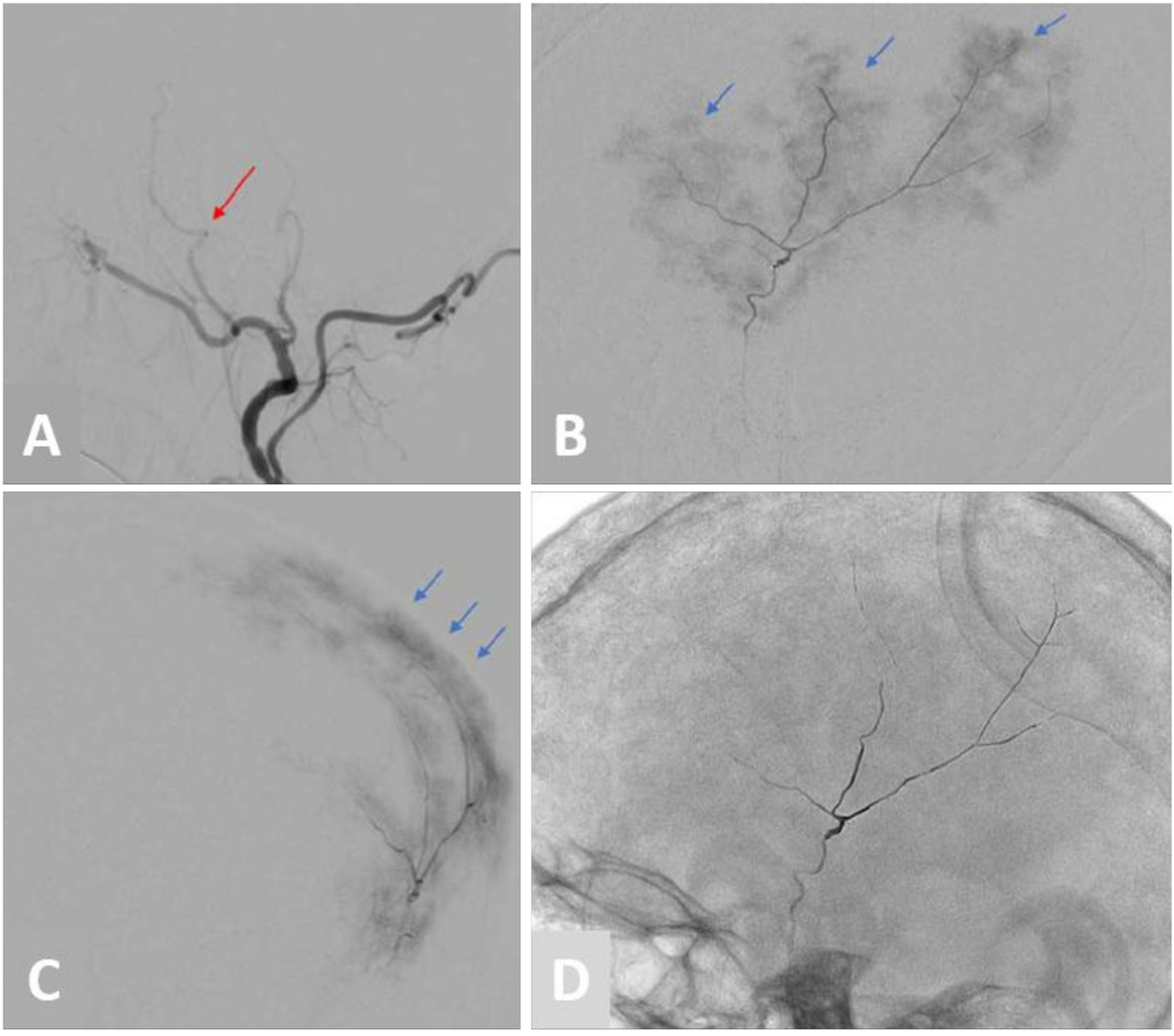

Figure 3. Embolization of chronic subdural hematoma (cSDH). **A**. Selective catheterization of the external carotid artery, with identification of the middle meningeal artery (red arrow), the target vessel for the procedure. **B–C**. Lateral and anteroposterior views of selective microcatheterization of the middle meningeal artery, demonstrating prominent vascular blush (blue arrows) arising from the supply to the hematoma capsule. **D**. Post-procedural control fluoroscopy reveals the artifact of the embolic material, consistent with complete embolization of the left middle meningeal artery.

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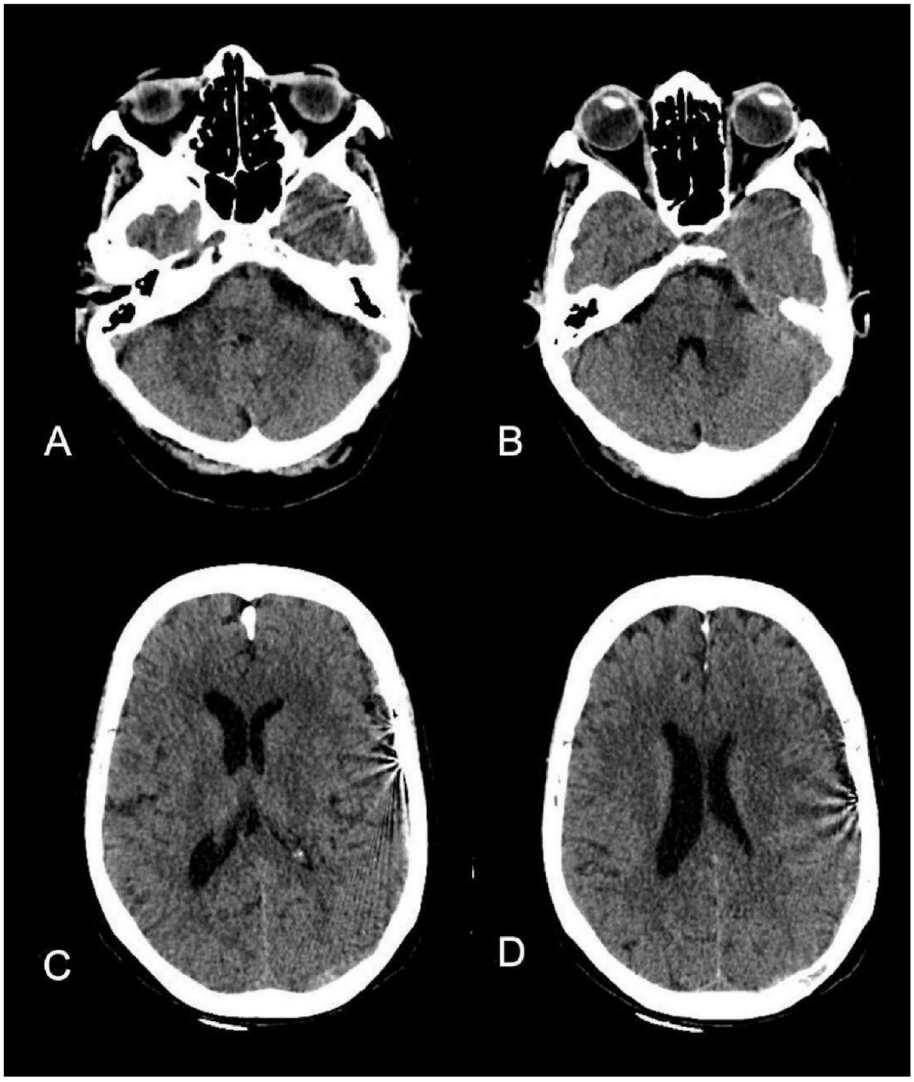

Figure 4. One-month postoperative CT scans. **A** and **B.** Axial images obtained one month after embolization of the left middle meningeal artery demonstrate marked regression of the posterior fossa hematoma. **C** and **D**. Supratentorial axial slices show complete resolution of the subdural collection, with visualization of the embolic material artifact.

4 RESULTS

Twenty case reports/short series were included, totaling 21 patients with infratentorial/posterior fossa CSDH. The mean age was 64.2 years (median 69; range 29–86; n=21), with a female predominance (76%).

The most frequently reported symptoms were headache (76%), gait/cerebellar ataxia (57%), dizziness/vertigo (33%), and nausea/vomiting (29%). Less common presentations included decreased level of consciousness (29%), motor deficits (24%), cranial nerve deficits (24%), and speech/language disturbance (10%). Papilledema (5%) and urinary incontinence (5%) occurred in isolated cases. No seizures were reported.

Most cases involved the posterior fossa/cerebellum, with a predominance of bilateral hematomas (60%), followed by right-sided (35%) and left-sided (5%) involvement. Concomitant CSDH was reported in 40% of cases, either contiguous or not, and was usually managed according to its specific location and mass effect (Figure 5).

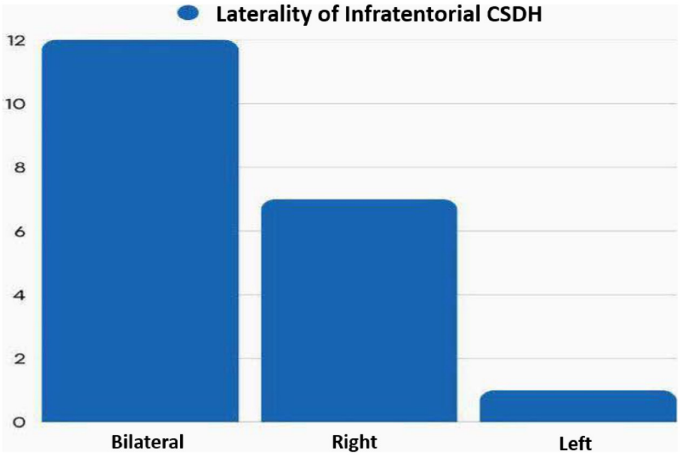

Figure 5. Laterality of infratentorial CSDH.

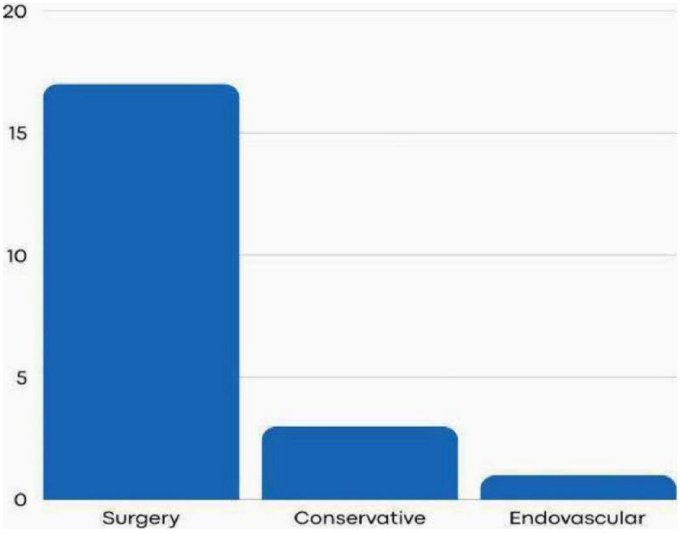

Figure 6. Treatment CSHD.

Associated hydrocephalus was observed in 30% of patients, typically resulting from compression of the fourth ventricle and brainstem. In the remaining 70%, no hydrocephalus was reported, suggesting that infratentorial CSDH may be clinically silent until mass effect becomes critical.

Management was predominantly surgical, with 17 patients (81%) undergoing burr-hole trephination or suboccipital craniectomy/craniotomy for hematoma evacuation and irrigation. Conservative management was chosen in 14% of cases, leading to clinical and radiological resolution. Notably, a single patient (5%) underwent endovascular embolization of the MMA, resulting in immediate clinical improvement and complete radiological resolution on follow-up. Although endovascular management remains scarcely reported in the literature, this case highlights its feasibility as a minimally invasive alternative, particularly in patients with contraindications to open surgery. In patients with concomitant supratentorial hematomas, treatment strategies were individualized, often combining surgical evacuation in the supratentorial compartment with conservative or endovascular approaches in the posterior fossa. These findings suggest that, while traditional surgical methods remain the mainstay, embolization of the MMA can be considered a viable adjunct or alternative in selected cases (Figure 6).

Clinical and radiological outcomes were generally favorable, with improvement occurring immediately or within a few days after treatment. No recurrences were reported across the included studies (0/20).

5 DISCUSSION

CSDH is characterized by the progressive accumulation of blood within the subdural cavity, most often associated from the rupture of bridging veins. The pathophysiology involves the activation of an inflammatory cascade and the formation of neoangiogenic membranes, which sustain the hematoma even in the absence of recent trauma[26].

Presentation of CSDH in the posterior fossa is extremely rare and, when present, requires particular attention due to the proximity of vital structures such as the brainstem and cerebellum. This location can lead to significant compression even with relatively small hematoma volumes and is frequently associated with predisposing factors such as coagulation disorders, prior trauma, or the presence of neurosurgical devices[3]. Inoue et al. reported that approximately 64% of posterior fossa CSDH cases described in the literature have no history of head trauma, while 71% present coagulopathies related to antiplatelet or anticoagulant therapy. They may also result from intracranial hypotension[15], and in some cases, no cause is identified[17]. Moreover, 53% of all posterior fossa CSDHs occur bilaterally[15].

The clinical presentation varies according to hematoma extent and may include headache, nausea, vomiting, ataxia, cranial

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nerve dysfunction, vertigo, nystagmus, dysarthria, and signs of intracranial hypertension[12,17]. CT is the initial diagnostic modality of choice, although MRI provides better delineation of the extent and anatomy of the hematoma and aids in identifying possible communications with supratentorial hematomas[18,27]. Therapeutic management should be individualized[5].

Suboccipital craniotomy is the most commonly used approach for direct decompression of the posterior fossa, enabling complete removal of the hematoma, excision of the outer membrane, and adequate irrigation of the cavity, which translates into significant clinical improvement. In some reports, supratentorial burr-hole drainage has been employed in combination, particularly when concomitant hematomas are present in both compartments[5].

More recently, endovascular embolization of the MMA has emerged as a minimally invasive alternative for supratentorial CSDH, particularly in patients with high surgical risk or recurrent hematomas[28,29]. The MMA arises from the first segment of the maxillary artery, enters the skull via the foramen spinosum, and supplies the dura of the frontal, temporal and parietal convexities and the middle cranial fossa[29]. By selectively occluding fragile neoangiogenic vessels within the outer membrane—the presumed source of ongoing bleeding—MMA embolization reduces recurrence and avoids many complications associated with open surgery[28]. In our report we performed selective MMA embolization and obtained hematoma regression without embolizing any posterior fossa artery, supporting the idea that interrupting the shared inflammatory/neoangiogenic process within the neomembrane can be sufficient even when infratentorial components are present. These results reinforce the MMA as an effective therapeutic target in selected patients.

In our case, MMA embolization alone was sufficient to induce regression of the chronic subdural hematoma, including infratentorial components, without the need to target posterior fossa arteries.

Postoperatively, subdural drainage and imaging follow-up are essential to minimize recurrence and to confirm complete hematoma resolution. In summary, although the optimal management of posterior fossa CSDH remains undefined, accumulated clinical experience supports suboccipital craniotomy when brainstem compression is present, particularly in cases centered in the cerebellopontine angle. This approach, often combined with burr-hole drainage, provides effective decompression and favorable outcomes[5].

6 LIMITATIONS

This study is limited by its single-case design and the small number of reported cases available in the literature. Most publications lack standardized outcome measures, consistent radiological parameters, and detailed clinical follow-up, which prevents quantitative comparison and formal meta-analysis. Future multicenter studies with uniform diagnostic and therapeutic criteria are necessary to strengthen the evidence base for posterior fossa CSDH management.

7 CONCLUSION

Chronic subdural hematoma of the posterior fossa remains an exceedingly rare and potentially life-threatening condition due to the confined anatomical space and proximity to vital neurovascular structures. Although open surgical evacuation continues to represent the cornerstone of management, endovascular embolization of the middle meningeal artery has emerged as a promising and minimally invasive alternative, particularly for patients with contraindications to craniotomy or with recurrent hematomas. The present case demonstrates that selective embolization can effectively promote hematoma resolution even when infratentorial components are present, likely through interruption of the inflammatory and neoangiogenic mechanisms sustaining the chronic collection. Further studies are needed to define the role of MMA embolization, but current evidence supports individualized management based on patient profile and hematoma characteristics.

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