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Systematic Review

Hydatid Cyst of The Orbit: A Systematic Review with Meta-Data

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Abstract

Introduction

Orbital hydatid cysts (HCs) constitute less than 1% of all cases of hydatidosis, yet their occurrence is often linked to severe visual complications. This study presents a systematic review of reported cases of orbital HCs.

Methods

A systematic review of the published studies of orbital HCs was conducted, the studies that met the following criteria were included: 1) The presence of the infection was confirmed through diagnostic methods, surgical findings, or histopathology. 2) The study provided a detailed case presentation.

Results

Thirty-two studies (56 cases) met the inclusion criteria. Ten patients were from Afghanistan (17.9%). There was no gender predilection, the distribution was almost equal. The ages ranged from three to 80 years old. The most common symptoms that the patients presented with were proptosis of the affected eye (98.2%) and visual impairment (64.3%). The therapeutic approach of orbital HC was primarily surgical removal of the cyst accompanied by anthelmintic drugs in 41 (73.2%) cases. Concurrent HC was reported in two cases (3.6%), and recurrence with subsequent recovery was reported in four (7.1%) cases.

Conclusion

Orbital HC is a rare condition, primarily diagnosed using MRI, with surgery as the definitive treatment. Concurrent hydatidosis increases the risk of recurrence, requiring thorough and ongoing follow-up.

1. Introduction

Hydatidosis or hydatid cyst (HC) is a commonly recognized zoonotic disease caused by the larval form of the tapeworm *Echinococcus granulosus*. Humans act as intermediate hosts for this parasite, acquiring infection through direct contact with definitive hosts (e.g., sheep, goats, cattle, dogs) or consuming contaminated food or water. [1].

The global incidence of hydatidosis varies, with higher rates observed in regions where livestock farming is widespread. Key risk factors for contracting hydatidosis include close contact with dogs, livestock-related activities, and residence in areas where the disease is endemic. These cysts typically occur in the liver (50-70%) and lungs (20-30%). The global burden of HC is significant, with an estimated 2 to 3 million cases reported worldwide [2]. However, orbital HC is uncommon, representing less than 1% of all cases, accounting for 19.8% in endemic countries [3].

The World Health Organization (WHO) has classified Echinococcosis as one of the 20 neglected tropical diseases that pose significant public health concerns. To ensure consistent global monitoring, the WHO Informal Working Group on echinococcosis has categorized cysts of echinococcosis into five distinct types, grouped into three main categories. Specifically, CE1 and CE2 are indicative of active infection, CE3 represents an intermediate stage, while CE4 and CE5 are associated with inactive cysts [4].

In endemic regions, environmental and climatic conditions play a crucial role in the survival of parasite eggs and the living conditions of livestock and stray dogs. For example, *Echinococcus granulosus* eggs remain viable in water and damp sand for up to three weeks at 30°C, 4.5 weeks at 10–21°C, and 32 weeks at 6°C. They can also survive for several months in green pastures and gardens [4]. Although the WHO classifies hydatidosis as a neglected disease, it continues to be a significant public health concern due to its status as the second most impactful foodborne parasitic disease, its endemic presence in certain regions, and its potential to cause substantial morbidity. The WHO prioritizes the control and prevention of hydatidosis, particularly given its impact on human health, animals, and the food supply chain.

Orbital HC, although rare, is often linked to severe visual complications. As of the date of the current review, the available literature on orbital HC primarily consists of case reports and case series, with no reviews currently available. This study aims to provide and analyze a collection of data through a systematic review and a meta-data presentation.

2. Methods

2.1. Study design

This systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [5].

2.2. Data sources and search strategy

A systematic review of the published studies of orbital HCs was conducted using Google Scholar and PubMed. Boolean operators (OR/AND) were used to refine the results. The keywords that were used in the search included: (eye OR orbital OR intraorbital OR ocular) AND (hydatid OR echinococcosis OR hydatidosis).

2.3. Eligibility criteria

Studies in languages other than English, as well as those not related to humans, were excluded either before or during the initial screening process. All studies on orbital HCs that met the following criteria were included: 1) The presence of the infection was confirmed through diagnostic methods, surgical findings, or histopathology. 2) The case presentation was detailed in the study. Studies published in non-peer-reviewed journals [6] or those failing to meet inclusion criteria were excluded.

2.4. Selection and extraction of data

The titles and abstracts of identified studies were first screened, followed by a thorough full-text review to assess eligibility. Key data were extracted from the included studies, including study design, country of origin, patient demographics (age, gender, residence), symptoms, history of HC, serological tests, diagnosis, management strategies, follow-up details, and recurrence rates.

2.5. Data analysis

Microsoft Excel (2019) was used to gather and organize the extracted data, while the Statistical Package for Social Sciences (SPSS) version 27.0 was utilized for data analysis (descriptive statistics). The findings were displayed as frequencies, percentages, ranges, and means with standard deviations

3. Results

A total of 146 studies were retrieved. One was excluded as a duplicate, 14 were non-English, and 62 were unretrievable. After title and abstract screening, 21 studies did not meet the inclusion criteria. The remaining 48 underwent full-text review, with seven more excluded. Of the 41 studies assessed for eligibility, nine were excluded for being from non-peer-reviewed journals or preprints. Ultimately, 32 studies [3,7-37] (56 cases) met the inclusion criteria (Figure 1).

Of the included studies [3,7-37], 28 (87.5%) were case reports, while the remaining 4 (12.5%) were case series (Table 1). The highest number of patients were from Afghanistan (10, 17.9%), followed by India (8, 14.3%), Azerbaijan (8, 14.3%), and Morocco and Turkey (6 each, 10.7%). Patient ages spanned from 3 to 80 years, with a mean age of 27.45 ± 19.57 years. The majority of the cases occurred between the first and fifth decades of life (47, 83.9%). The right side was affected in 33 (58.9%) cases and there were no cases with bilateral HC. Sixteen patients (28.6%) were from rural areas, and 13 (23.2%) reported contact with dogs, sheep, or other cattle (Table 2).

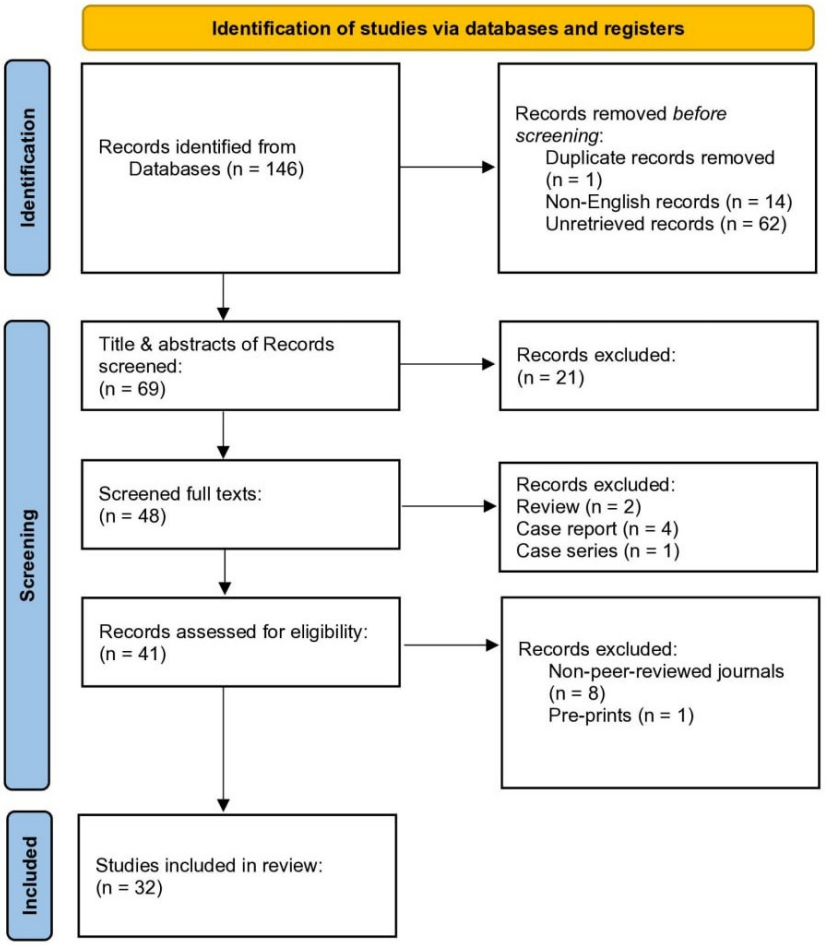

Figure 1. Study selection PRISMA flow chart.

Proptosis was present in 55 cases (98.2%), while visual impairment was reported in 37 cases (64.3%). Magnetic resonance imaging (MRI) was used for diagnosis in 38 cases (67.8%), while computed tomography (CT) was used in 28 cases (50%). Laboratory tests were conducted in 37 cases (66.1%), with 32 (86.5%) yielding normal results. The primary treatment for orbital HC was surgical removal of the cyst combined with anthelmintic therapy in 41 cases (73.2%). Surgery alone was performed in 14 cases (25%), while a conservative approach was used in one case (1.8%). Among those who underwent surgery, orbitotomy was the preferred surgical approach for accessing the cyst in 41 cases (74.5%). Cystectomy was the most common removal method, performed in 20 cases (36.4%), while the PAIR method (puncture, aspiration, injection, and re-aspiration) was used in 2 cases (3.6%). Follow-up durations ranged from 3 weeks to 72 months. Concurrent HC was reported in 2 cases (3.6%), while recurrence followed by recovery occurred in 4 cases (7.1%) (Table 3).

4. Discussion

Hydatid disease is a parasitic infection endemic in many regions worldwide. While traditionally attributed to *Echinococcus granulosus*, recent studies have identified five causative Echinococcus species with ten distinct genotypes (G1–G10), including *E. oligarthrus*, *E. equinus*, *E. granulosus sensu stricto*, *E. canadensis*, and *E. felidis* [4]. Orbital HCs are typically primary and occur unilaterally [7]. In endemic regions, HCs are the second most common cystic orbital lesions (25.8%), following dermoid cysts (29.7%) [8,9].

The clinical manifestations of HC primarily result from their mass effect on surrounding structures, especially in confined areas like the orbit. The predominant clinical manifestation of intra-orbital hydatid cysts, as observed in the present review, is a gradually progressive, unilateral proptosis, which may present in either an axial or non-axial orientation. This condition is

Table 1. Baseline characteristics of the included studies.

Author	Type of study	Country of the patients	N. of Patients	Age	Sex	Symptoms	Affected side	Cyst Size (Cm)	Surgical approach	Cyst removal approach	Adjuvant therapy	Outcome	Follow up (months)
Abouassi et al. [3]	Case Report	Syria	1	21	F	Proptosis & visual impairment	Right	4.2	Fronto-orbitozy-gomatic orbitotomy	Cystectomy	Albendazole	Recovered	3
Ilhami et al. [7]	Case series	Morocco	3	13	F	Proptosis & decreased visual acuity	Right	4.2	Internal paracanthal orbitotomy	Cystectomy	Albendazole	Recovered	N/A
				67	F	Proptosis, pain, headache & chemosis	Left	3.5	Superolateral orbitotomy	Enucleation cystectomy	Albendazole	Recovered	N/A
				43	F	Proptosis	Left	2.9	Internal paracanthal orbitotomy	Enucleation cystectomy	Albendazole	Recovered	N/A
Alabdullah et al. [8]	Case Report	Syria	1	10	M	Proptosis, diplopia & decreased vision	Left	2.7	Subperiosteal orbitotomy	Lynch method	Albendazole	Recovered	N/A
Khan et al. [9]	Case Series	Pakistan	11	15	F	Proptosis & visual impairment	Left	N/A	Orbitotomy	Unspecified	Albendazole	Recovered	*
				15	M	Proptosis & visual impairment	Right	N/A	Orbitotomy	Unspecified	Albendazole	Recovered	*
				3	F	Proptosis & visual impairment	Left	N/A	Orbitotomy	Unspecified	Albendazole	Recovered	*
				17	F	Proptosis& visual impairment	Left	N/A	Orbitotomy	Unspecified	Albendazole	Recovered	*
				28	F	Proptosis & visual impairment	Right	N/A	Orbitotomy	Unspecified	Albendazole	Recovered	*
				19	M	Proptosis & visual impairment	Left	N/A	Orbitotomy	Unspecified	Albendazole	Recovered	*
				20	F	Proptosis & visual impairment	Left	N/A	Orbitotomy	Unspecified	Albendazole	Recovered	*
				6	M	Proptosis & visual impairment	Right	N/A	Orbitotomy	Unspecified	Albendazole	Recovered	*
				6	M	Proptosis & visual impairment	Right	N/A	Orbitotomy	Unspecified	Albendazole	Recovered	*
				5	M	Proptosis & visual impairment	Left	N/A	Orbitotomy	Unspecified	Albendazole	Recovered	*
				65	M	Proptosis & visual impairment	Left	N/A	Orbitotomy	Unspecified	Albendazole	Recovered	*

Table 1. Continued...

Bamashmus et al. [18]	Case report	Yemen	1	58	M	Proptosis, impaired vision & chemosis	Right	N/A	Transconjuctival & lateral orbitotomy	PAIR method	Mebendazole	Recovered	N/A
Assimakopoulos et al. [19]	Case report	Greece	1	31	F	Proptosis & impaired vision	Left	N/A	Lateral orbitotomy	Modified cystectomy	Albendazole	Recovered	3
Berradi et al. [20]	Case report	Morocco	1	46	M	Proptosis	Left	4.2	Unspecified	Modified PAIR method	None	Recovered	3
Chitra et al. [21]	Case report	Morocco	1	3	F	Proptosis & impaired vision	Left	2.8	Extradural frontal orbitotomy	Barrett's technique	Albendazole	Recovered	24
Elkrimi et al. [22]	Case Report	Morocco	1	5	M	Proptosis	Left	3.1	Combined approach (endoscopy & supraorbital incision)	Partial cystectomy	Albendazole	Recovered	6
Hosaini et al. [23]	Case report	Afghanistan	1	8	M	Proptosis, chemosis, reduced vision & headache	Right	5	Transconjuctival orbitotomy	Modified cystectomy	Albendazole	Recovered	N/A
Jaffar et al. [24]	Case report	Pakistan	1	27	M	Proptosis, visual impairment, reduced ocular motion & discharge	Left	5	Unspecified	Unspecified	None	Recovered	N/A
Kars et al. [25]	Case report	Turkey	2	7	M	Proptosis & impaired vision	Left	N/A	Transcranial orbitotomy	Unspecified	None	Had recurrence, recovered after a second surgery	24
				11	F	Proptosis, impaired vision & limited ocular motility	Right	N/A	Transcranial orbitotomy	Unspecified	None	Recovered	6
Das et al. [26]	Case report	India	1	52	M	Proptosis	Left	4	Orbitotomy	Unspecified	Albendazole	N/A	N/A
Motlagh et al. [27]	Case report	Iran	1	24	M	Proptosis & diplopia	Right	N/A	Frontotemporal craniotomy & superior orbitotomy	Partial cystectomy with saline irrigation	Albendazole, antibiotics & steroid	Recovered	N/A
Özek et al. [28]	Case report	Turkey	1	52	F	Proptosis, visual loss & orbital pain	Right	N/A	Lateral orbitotomy	Cystectomy with saline irrigation	Mebendazole	Recovered	7
Rajabi et al. [29]	Case series	Azerbaijan	8	14	M	Proptosis	Right	N/A	Lateral orbitotomy	Unspecified	Albendazole	Recovered	**
				24	M	Proptosis	Right	N/A	Medial orbitotomy	Unspecified	Albendazole	Recovered	**
				13	M	Proptosis	Right	N/A	Superior orbitotomy	Unspecified	Albendazole	Recovered	**

Table 1. Continued...

			18	F	Proptosis	Left	N/A	Lateral orbitotomy	Unspecified	Albendazole	Recovered	**	18
			62	F	Proptosis	Left	N/A	Lateral orbitotomy	Unspecified	Albendazole	Recovered	**	62
			33	F	Proptosis	Right	N/A	Lateral orbitotomy	Unspecified	Albendazole	Recovered	**	33
			44	F	Proptosis	Left	N/A	Inferior orbitotomy	Unspecified	Albendazole	Recovered	**	44
			26	M	Proptosis	Left	N/A	Lateral orbitotomy	Unspecified	Albendazole	Recovered	**	26
Haydar et al. [10]	Case report	Afghanistan	1	22	M	Proptosis, decreased vision &pain	Left	3.6	Inferior transconjunctival orbitotomy	Aspiration and excision	Albendazole	Recovered	10
Sendul et al. [11]	Case report	Turkey	1	24	F	Proptosis & visual impairment	Right	2.2	Medial transconjonctival orbitotomy	Cystectomy with aspiration	Albendazole	Had recurrence, recovered after a second surgery	N/A
Mathad et al. [12]	Case Report	India	1	80	F	Proptosis & visual impairment	Left	3	Lateral orbitotomy	Cystectomy	None	Recovered	N/A
Öztekin et al. [13]	Case Report	Turkey	1	57	M	Proptosis & visual impairment	Right	1.5	unspecified	Unspecified	None	Recovered	N/A
Kumar et al. [14]	Case Report	India	1	47	F	Proptosis. Headache, pain & visual impairment	Left	3.7	Orbitotomy	Modified cystectomy	Albendazole	Recovered	12
Debela et al. [15]	Case Report	Ethiopia	1	60	F	Proptosis & visual impairment	Left	2.6	Medial anterior orbitotomy	Modified cystectomy	Albendazole	Recovered	3 weeks
Anandpara et al. [16]	Case report	India	1	45	F	Gradual loss of vision & proptosis	Left	3.7	Lateral orbitotomy	Unspecified	Albendazole	Recovered	10
				44	F	Proptosis & diminished visual acuity	Right	N/A	Transconjuctival incision	Endocystectomy	Topical antibiotics, steroid eye drops & NSAIDs	Recovered	58
Awad et al. [17]	Case Series	Egypt	5	13	M	Proptosis, pain & diminished visual acuity	Left	N/A	Transconjuctival incision	Endocystectomy	Topical antibiotics, steroid eye drops & NSAIDs	Recovered	42
				11	M	Proptosis & diminished visual acuity	Left	N/A	Transconjuctival incision	Endocystectomy	Topical antibiotics, steroid eye drops &	Recovered	31

Table 1. Continued...

				41	M	Proptosis & diminished visual acuity	Left	N/A	Transconjuctival incision	Endocystectomy	Topical antibiotics, steroid eye drops & NSAIDs	Recovered	23
				39	F	Proptosis, pain & diminished visual acuity	Left	N/A	Transconjuctival incision	Endocystectomy	Topical antibiotics, steroid eye drops & NSAIDs	Recovered	11
Rajabi et al [30]	Case report	Iran	1	23	F	Severe proptosis	Right	N/A	Lateral orbitotomy	Total resection	Albendazole	Recovered	48
Turgut et al. [31]	Case report	Turkey	1	5	M	proptosis	Left	N/A	Transcranial approach	Cystectomy with saline irrigation	Mebendazole	Had recurrence, recovered after conservative approach	36
Arora et al. [32]	Case report	India	1	16	M	Impaired vision & dull headache	Left	N/A	Curette evacuation	Unspecified	None	Recovered	N/A
Lenztzsch et al. [33]	Case report	Germany	1	5	F	Proptosis, downward displacement of the eye	Left	N/A	Lateral transosseous orbitotomy	Unspecified	Albendazole	Recovered	N/A
Al-muala et al. [34]	Case report	Iraq	1	42	F	Swelling, proptosis, visual impairment & headache	Right	3	Lateral rhinotomy	Cystectomy	Albendazole	Recovered	8
Ahluwallaet al. [35]	Case report	India	1	30	F	Proptosis & headache	Right	2.5	Anterior orbitotomy with lateral extension	Unspecified	None	Recovered	N/A
Sihota et al. [36]	Case report	India	1	14	M	Recurrent proptosis	Left	N/A	No surgery was performed	N/A	Albendazole	Had recurrence & recovered	24
Huilgol et al. [37]	Case report	India	1	8	F	Proptosis, pain & diminished vision	Right	N/A	Exenteration of the orbit	N/A	None	Recovered	N/A

N/A = Not applicable, M = Male, F = Female, cm = Centimeter

**Khan et al. gives a range of follow up periods between 3 to 12 months without specifying the exact periods of each patient.*

***Rajabi et al. gives a range of follow up periods between 2 to 6 years without specifying the exact periods of each patient.*

Table 2. Demographics, and clinical findings of patients.

Variables	Frequency (%)/mean ± SD
Mean age	27.45 ± 19.57
Age Group (years)	Number of patients (56)
0-9	11 (19.6%)
10-19	14 (25%)
20-29	9 (16.1%)
30-39	5 (8.9%)
40-49	8 (14.3%)
50-59	4 (7.2%)
60-69	4 (7.2%)
80-89	1 (1.8%)
Gender	Number of patients (56)
Male	27 (48.2%)
Female	29 (51.8%)
Country of patients	Number of patients (56)
Afghanistan	10 (17.9%)
India	8 (14.3%)
Azerbaijan	8 (14.3%)
Morocco	6 (10.7%)
Turkey	6 (10.7%)
Egypt	5 (8.9%)
Iran	3 (5.36%)
Pakistan	3 (5.36%)
Syria	2 (3.57%)
Yemen	1 (1.8%)
Greece	1 (1.8%)
Ethiopia	1 (1.8%)
Germany	1 (1.8%)
Iraq	1 (1.8%)
Affected side	Number of patients (56)
Right side	33 (58.9%)
Left side	23 (41.1%)
Area of residency	
Urban	1 (1.8%)
Rural	16 (28.6%)
N/A	39 (69.6%)
Contact with sheep and dogs	
Reported	13 (23.2%)
N/A	43 (76.8%)

generally painless, irreducible, non-pulsatile, and lacks blowing characteristics. If the cyst ruptures, it can cause inflammation. Additional symptoms of orbital HCs may include ocular pain, diplopia, headache on the affected side, blurred vision, vision loss, chemosis, eyelid edema, restriction of extraocular movements, and orbital cellulitis. In more advanced stages, signs may include optic disc swelling, optic atrophy with abnormal papillary defects, retinal vein engorgement, orbital bone erosion, hypopyon, and further eyelid edema [10]. The findings of the current review indicate that there is no evident sex predilection, as both males and females are affected at comparable rates. This observation aligns with existing literature; for instance, Khan et al. reported a case series in which 45.45% of the patients were female [9]. Although some suggest that the left side may be more prone to involvement due to the path of the left carotid artery [10], the findings of the current review indicate that the path of the left carotid artery does not predict which side will be affected, and there hasn't been any definitive factor that can determine which side will be involved.

Children and young adults are the most commonly affected age groups; however, the condition is not limited to them. In the present review, the age of affected individuals ranged from three to 80 years, demonstrating the wide age distribution of the disease. Younger individuals may be more exposed to environments or activities that increase their risk of ingesting Echinococcus eggs, such as direct contact with infected animals (particularly dogs) or consumption of contaminated food or water. Additionally, they may be exposed to these risk factors for a longer duration, allowing sufficient time for HCs to form and grow before the disease develops. Cysts grow at an average rate of about 1–1.5 cm per year. Currently, there is no definitive categorization of "giant" HCs in the literature. Due to the limited space in the orbital cavity, patients typically develop symptoms within two years [10]. Orbital HCs are often diagnosed early in children due to the limited space within the orbit. The diagnosis of orbital HCs requires a combination of approaches, including laboratory tests, imaging, and histopathology for confirmation. Although various serological tests are available for the diagnosis of echinococcosis, their sensitivity is often limited in cases of orbital hydatid cysts. This limitation is evident in the present

Table 3. Presentation, diagnostics, therapeutic approach, and outcome of patients.

Variables	Frequency (%)
Presentation	Number of patients (56)
Symptomatic	56 (100 %)
Asymptomatic	0
Common symptoms	Symptomatic patients (56)
Proptosis	55 (98.2%)
Visual impairment	36 (64.3%)
Imaging modalities	
MRI	38 (67.8%)
CT scan	28 (50%)
Laboratory tests	Number of patients (37)
Positive	5 (13.5%)
Negative	32 (86.5%)
Mean cyst size (cm) ± SD	3.25 ± 0.9
Therapeutic approach	Number of patients (56)
Surgery & anthelmintic drugs	41 (73.2%)
Surgery alone	14 (25%)
Conservative approach	1 (1.8%)
Surgical technique for accessing the orbit	Number of patients (55)
Orbitotomy	41 (74.5%)
Trans-conjuctival incision	5 (9.1%)
Unspecified	3 (5.5%)
Combined approach	2 (3.6%)
Lateral rhinotomy	1 (1.8%)
Exenteration of the orbit	1 (1.8%)
Curette evacuation	1 (1.8%)
Transcranial approach	1 (1.8%)
Surgical technique for cyst removal	Number of patients (55)
Cystectomy	20 (36.4%)
Unspecified	28 (50%)
PAIR method	2 (3.6%)
Lynch method	1 (1.8%)
Aspiration and excision	1 (1.8%)
Barrett's technique	1 (1.8%)
Total resection	1 (1.8%)
Aspiration and excision	1 (1.8%)
Anthelmintic drug of choice	Number of patients (42)
Albendazole	39 (92.9%)
Mebendazole	3 (7.1%)
Outcome	Number of patients (56)
Recovery	55 (98.2%)
N/A	1 (1.8%)

review, where only five out of 37 serological tests produced positive results. They also have lower sensitivity compared to tests for other organs, as the parasitic proteins are less exposed to the immune system in the orbit [11].

Imaging tests, particularly MRI and CT, are the most commonly used modalities for diagnosing orbital HCs, a trend observed in the current review. On CT imaging, the lesion appears hypodense, unilocular, well-defined, and thin-walled, with a homogeneous mass featuring a hyperdense rim and capsular enhancement. On orbital MRI, the cyst demonstrates low signal intensity on T1-weighted images and high signal intensity on T2-weighted images, with contrast enhancement of the capsule [12]. MRI is superior to other imaging modalities as it provides more detailed information and can differentiate the cyst from other lesions and surrounding tissue. The differential diagnosis should include other cystic mass lesions, such as abscesses, mucoceles, intra-orbital hematomas, lacrimal tumors or cysts, and lymphangiomas [13].

Regarding treatment, surgical removal of the cyst without rupture is preferred. However, this is not always feasible due to the anatomical complexity of the orbit. The complex structure and thin walls of orbital HCs make them prone to rupture. Rupture may also result in the persistence of residual cyst wall fragments or cause secondary implantation of the parasite [14]. The PAIR method has emerged as a minimally invasive alternative for treating intra-abdominal HCs. However, for orbital HCs, as demonstrated in cases by Bamashmus et al. and Berradi et al., the PAIR method has been used out of necessity, primarily due to the anatomical constraints of the surgical area and the accidental rupture of the cyst [18,20]. Based on the results of the current review, orbitotomy is the preferred surgical approach for accessing and exploring the cyst in the orbit. However, various other techniques can be employed, with the choice of approach largely determined by the cyst's location, size, and the surgeon's expertise. Elkrimi et al. utilized a combined endoscopic and supraorbital incision approach to access a 3.1 cm cyst [22], while Mathad et al. and Al-Muala et al. accessed a 3 cm cyst using lateral orbitotomy and lateral rhinotomy, respectively [12,34]. The findings of the current review suggest that cystectomy is the preferred surgical technique for cyst removal. However, complications during the procedure can necessitate alterations in the surgical approach, requiring immediate modifications, as reported by Sendul et al [11].

Preoperative anthelmintic therapy, particularly with albendazole, is crucial for preventing parasite spread and reducing the risk of anaphylactic reactions in case of cyst rupture during surgery [12]. Postoperative administration of albendazole or mebendazole is also recommended to reduce the likelihood of relapse. Albendazole is commonly preferred due to its superior systemic absorption and better ability to penetrate cysts [10]. In the current review, Albendazole was used in 92.9% of the cases. Additionally, postoperative therapy included the use of steroids, NSAIDs, and antibiotics to manage symptoms, as shown by Awad et al. [17].

Regarding recurrence, the findings of this review suggest a higher likelihood of recurrence in cases with concurrent hydatidosis. The increased parasitic burden in these cases may be a significant contributing factor to disease recurrence. Preventing recurrence can be achieved by improving basic hygiene practices, such as handwashing after contact with dogs and sheep, enhancing livestock slaughter hygiene, ensuring continuous deworming of dogs, and promoting public education. During the course of this review, several limitations were identified. Firstly, most of the included papers, as well as the majority of the available literature, are case reports and case series. Additionally, a large amount of data was unretrievable during the search process.

5. Conclusion

Orbital HC is a rare condition, primarily diagnosed using MRI, with surgery as the definitive treatment. Concurrent hydatidosis increases the risk of recurrence, requiring thorough and ongoing follow-up.

Declarations

Conflicts of interest: The author(s) have no conflicts of interest to disclose.

Ethical approval: Not applicable, as systematic reviews do not require ethical approval.

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