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(CASE REPORT)

Battling the bulge: Case of a giant cystic hygroma in a male neonate at Mbale regional referral hospital

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Abstract

Cystic hygroma is a congenital lymphatic malformation that commonly presents in the cervicofacial region and can cause significant airway and feeding difficulties in neonates. We report the case of a one-month-old male infant born with a large, cystic neck mass, diagnosed clinically as a cystic hygroma at birth. The child was initially managed conservatively due to limited resources but returned with worsening respiratory distress, prompting urgent surgical intervention. A complete excision of the lesion was successfully performed, with histopathology confirming a macro cystic lymphatic malformation. Postoperative recovery was uneventful, and the infant demonstrated normal growth and development during follow-up. This case underscores the critical need for early recognition, timely referral, and surgical capacity in resource-limited settings. It also highlights the challenges and opportunities for improving neonatal surgical care and congenital anomaly management in sub-Saharan Africa.

Keywords: Cystic Hygroma; Lymphatic Malformation; Neonate; Airway Obstruction; Surgical Excision

1. Introduction

1.1. Define a cystic hygroma

A cystic hygroma, also known as a lymphatic malformation, is a congenital malformation of the lymphatic system characterized by multiloculated, fluid-filled cystic spaces, most commonly occurring in the head and neck region. It results from a failure of the lymphatic system to connect properly with the venous system during embryonic development, leading to the accumulation of lymphatic fluid in cyst-like structures [1].

Cystic hygroma, though a benign congenital condition, presents a significant burden both medically and socioeconomically, particularly in low-resource settings. It can manifest prenatally, at birth, or in early infancy, often as a rapidly enlarging, soft, and transilluminate mass in the neck or axillary region [2]. Its presence can lead to serious complications such as airway obstruction, feeding difficulties, and infections, especially when the lesion becomes secondarily infected or haemorrhagic [3, 4]. In severe cases, it may threaten life due to compression of critical structures or interfere with normal development [5].

The psychological impact on caregivers and families is substantial, driven by the alarming size and location of the swelling, fear of malignancy, cosmetic disfigurement, and concerns about long-term outcomes [6, 7]. This distress is compounded when access to specialized care such as paediatric surgery, interventional radiology, or sclerotherapy is limited, leading to delays in diagnosis and treatment.

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The economic burden is also noteworthy. Management often requires multimodal and sometimes repeated interventions, including imaging, surgical excision, and follow-up care, which can be financially draining for families, especially in areas where health insurance coverage is limited or non-existent [9]. Moreover, prolonged hospital stays and the potential for complications increase the strain on already overstretched healthcare systems.

In countries with limited resources, like many in sub-Saharan Africa, these challenges are magnified by a lack of awareness, poor prenatal diagnostic capacity, inadequate referral systems, and scarcity of specialized treatment options. As a result, cystic hygromas may present late with complications, making management more complex and outcomes less favourable. Thus, while cystic hygroma is not malignant, its burden is multifaceted, affecting physical health, mental well-being, healthcare systems, and financial stability, especially in low-income settings.

Cystic hygroma is well documented globally, especially in high-income countries where prenatal diagnosis and advanced treatment options like sclerotherapy and surgery are widely accessible. Studies have thoroughly explored its causes, associations with genetic syndromes, and various management strategies, with well-established outcomes data.

In contrast, literature from Africa is limited, primarily consisting of isolated case reports and small case series. These highlight late presentations, diagnostic delays, and challenges in accessing specialized care. Advanced treatment options are often unavailable, and long-term outcomes are rarely reported.

In East Africa, including Uganda, published information is even scarcer. Most accounts come from tertiary hospitals and are individual case reports [9]. There is a lack of epidemiological studies, treatment outcome data, and research on the broader health system's response. In Uganda specifically, there are no comprehensive studies or national data on cystic hygroma, and little is known about community awareness or psychosocial impact. Significant gaps remain in local research, including studies on incidence, cost-effective treatment strategies, and integration of cystic hygroma management into national health policy. These gaps highlight a pressing need for context-specific research to inform better diagnosis, care, and health planning in low-resource settings.

2. Case presentation

- Patient Identifier; Baby M.R, a one-month-old male neonate
- Hospital: Mbale Regional Referral Hospital, Uganda
- Presenting Complaint: Difficulty in breathing and neck swelling since birth, worsening over the past 14 days.

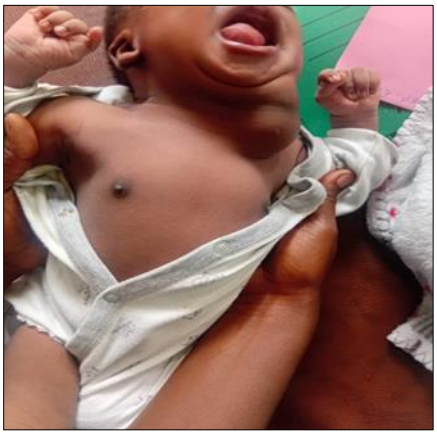

Figure 1 Baby being examined

3. History of Presenting Illness

Baby M.R. was born at term via spontaneous vaginal delivery to a 24-year-old primigravida mother, with an uneventful antenatal period and no known maternal illnesses. At birth, a large, soft, non-tender swelling was noted on the left side of the neck extending to the lower face and shoulder region. The mass was cystic, fluctuant, and transilluminant. Due to concerns of airway compromise and feeding difficulty, the neonate was admitted to the Neonatal Acute Care Unit (NACU) for monitoring and supportive care.

While in the NACU, the infant was reviewed by the surgery team who clinically diagnosed a cystic hygroma. Imaging studies were advised but could not be completed due to logistical constraints. The swelling remained stable, and the baby was discharged after a week with instructions for outpatient surgical follow-up.

At one month of age, the infant was brought back to the hospital with progressively worsening respiratory distress over 3 days, refusal to breastfeed, and increased size of the neck swelling. There was no history of fever or trauma, but the caregivers reported rapid increase in swelling and noisy breathing.

3.1. Past Medical History

- No previous surgeries or known allergies
- Born in a health facility with good Apgar scores
- Previous NACU admission for observation and feeding support

3.2. Family and Social History

- Non-consanguineous parents
- No known family history of congenital anomalies
- Lives in a rural area with limited access to specialized care

3.3. Examination Finding

- **General**: Ill-looking, in respiratory distress, nasal flaring, subcostal recessions
- **Vitals:** 168 bpm, RR 62 bpm, Temp 36.9°C, SpO_2 88% on room air
- **Neck:** Massive**,** multilobulated, soft, cystic swelling over the left neck extending into the submandibular and supraclavicular areas, measuring approximately 10x8 cm; transilluminate; overlying skin intact
- **Airway:** Partially compromised with mild stridor; trachea deviated to the right
- **Chest**: Reduced air entry on the left upper lung zones due to compression
- **Other Systems**: Normal
- **Differential Diagnosis**: Cystic hygroma (lymphatic malformation) Cervical teratoma

Branchial cleft cyst Hemangioma (less likely due to cystic nature and transillumination)

3.4. Investigations

- **Neck ultrasound:** Large, multiloculated cystic lesion consistent with macro cystic lymphatic malformation
- **Chest X-ray**: Tracheal deviation to the right, no lung consolidation
- **CBC and electrolytes**: Within normal limits with HB of 14.6 g/dl.

3.5. Management Plan

Planned surgical excision and sclerotherapy

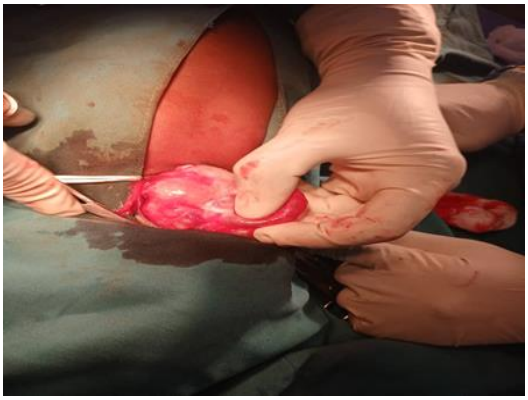

Figure 2 During Excision

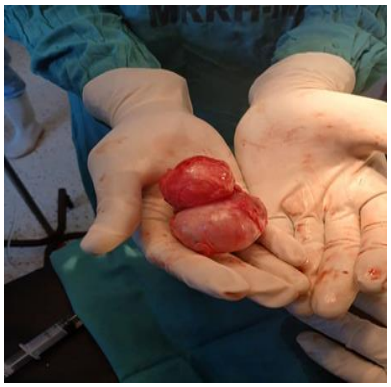

Figure 3 After surgical excision the lesion was totally excised and subjected to histology.

4. Provisional diagnosis

Giant congenital cystic hygroma with secondary airway compromise

- Treatment and followup
- Surgical excision

Following stabilization with oxygen therapy and close monitoring in the paediatric ward, the infant was scheduled for surgical excision under general anaesthesia due to worsening airway compromise and the increasing size of the mass. Preoperative assessment by the anaesthesia team noted a potentially difficult airway, and preparations were made for emergency tracheostomy if required.

Intraoperatively, a transverse cervical incision was made along a skin crease to provide optimal exposure. The mass was found to be a large, multiloculated cystic lesion extending from the left mandibular angle to the supraclavicular fossa, displacing the sternocleidomastoid muscle and closely abutting the carotid sheath structures. Careful blunt and sharp dissection was performed to avoid injury to the surrounding neurovascular structures. The cystic lesion was successfully excised in its entirety, with minimal bleeding and no intraoperative rupture of the cysts.

Haemostasis was secured. The wound was closed in layers with absorbable sutures, Vicryl 2/0, for the deeper tissues and simple continuous suturing for the skin.

The infant was extubated postoperatively and transferred to the recovery area in stable condition, then monitored in the surgical ward. Recovery was uneventful, with gradual resolution of respiratory distress and return to normal feeding.

Histopathological examination of the excised tissue confirmed the diagnosis of macrocytic lymphatic malformation (cystic hygroma), composed of dilated lymphatic channels lined by a single layer of endothelium within a fibrous stroma.

Figure 4 Histopathology of macro cystic hygroma

5. Follow-Up

The infant was reviewed two weeks post-discharge and was found to be in good general condition. The surgical wound had healed well with no signs of infection or seroma formation. Respiratory function had normalized, and the infant was feeding adequately and gaining weight appropriately.

At one-month follow-up, there was no evidence of recurrence or residual swelling. Neck movements were normal, and there were no signs of neurovascular compromise. Developmental milestones were age-appropriate, and the cosmetic outcome was satisfactory, with minimal scarring.

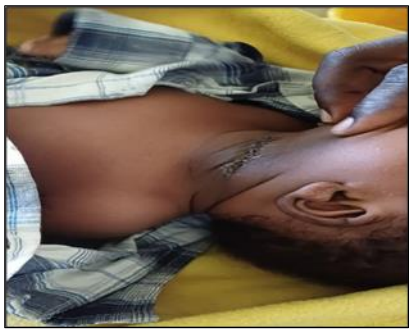

Figure 5 Baby at review after 3 months

The patient has since been reviewed at three-month intervals in the surgical outpatient clinic. At the six-month follow-up, the infant remained well, with no recurrence of the mass on clinical examination. The family expressed satisfaction with the outcome and were counselled on signs of recurrence and the importance of continued follow-up during early childhood.

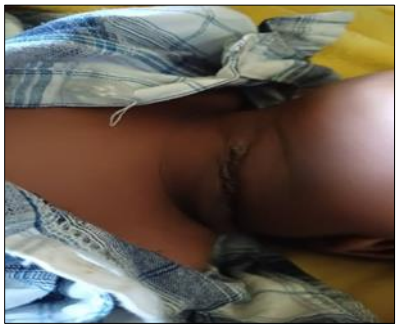

Figure 6 Baby was much improved after 6 months

6. Discussion

These malformations can rapidly enlarge due to infection, haemorrhage, or lymph accumulation, leading to compression of adjacent structures [10]. In this case, airway compromise became imminent, necessitating urgent surgical intervention. The successful excision despite proximity to critical structures speaks to the surgical team's skill and the resilience of Uganda's tertiary care infrastructure under pressure.

Histopathological confirmation of a macrocystic lymphatic malformation affirms the diagnosis, while the uneventful postoperative recovery and excellent medium-term outcome highlight the curative potential of timely surgical excision. Nonetheless, this case also reveals broader gaps: lack of prenatal diagnosis, delayed definitive management, and limited access to less invasive treatments such as sclerotherapy, which are often unavailable in many Ugandan hospitals.

Beyond the clinical facts lies a powerful narrative of maternal anxiety, health system limitations, and the delicate balance between waiting and acting in paediatric surgical care. The social and psychological burden on families dealing with visible congenital anomalies is profound, and without strong referral systems, health education, and follow-up mechanisms, such conditions may easily escalate into preventable emergencies [11].

This case adds to the limited but growing body of literature on cystic hygroma in sub-Saharan Africa. It reinforces the urgent need for early diagnosis, timely surgical intervention, and, above all, strengthening of neonatal and paediatric surgical services. It also calls for investment in diagnostic imaging, training of frontline healthcare workers, and wider availability of treatment modalities like sclerotherapy that could offer safer, outpatient-based care for select cases.

Ultimately, this child's story is one of survival and success, but it also serves as a call to action for more robust systems that can deliver equitable, timely, and effective care for congenital anomalies across the region.

7. Conclusion

This case illustrates the potentially life-threatening nature of giant congenital cystic hygroma in neonates, particularly when located in the cervical region. Despite its benign histology, the mass can cause severe airway compromise and feeding difficulties if not diagnosed and managed promptly. Surgical excision, while challenging, remains a definitive and curative treatment when performed by experienced hands, even in resource-limited settings. The successful outcome in this case emphasizes the importance of early recognition, timely referral, and coordinated multidisciplinary care in improving survival and quality of life for affected infants.

Recommendations

- **Strengthen Early Detection:** There is a need to improve antenatal diagnostic capabilities through routine obstetric ultrasound and training in the recognition of congenital anomalies.
- **Enhance Capacity for Definitive Management:** Regional hospitals should be equipped with paediatric surgical services and basic imaging modalities to facilitate early intervention.
- **Promote Use of Less Invasive Options:** Where available, sclerotherapy should be introduced as an alternative or adjunct to surgery, particularly in non-emergency cases.
- **Establish Structured Follow-up Systems:** Postoperative monitoring and developmental assessment should be integrated into neonatal follow-up programs to detect recurrences and support family needs.
- **Build Awareness and Referral Networks:** Health workers at peripheral facilities should be trained to recognize and refer congenital neck masses early, while also providing psychosocial support to affected families.

By implementing these measures, outcomes for children with cystic hygroma in Uganda and similar settings can be significantly improved.

Compliance with ethical standards

Disclosure of conflict of interest

The authors do not have conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

[1] Afiadigwe EE et al. (2022). "Giant Cystic Hygroma Encapsulating the Internal Jugular Vein and Causing Severe Airway Obstruction: A Rare Presentation and Review of Literatures." Acta Scientific Otolaryngology, 4(6). (Acta Scientific)

[2] Abdulahi Z et al. (2023). "Giant Cystic Hygroma with Complete Encasement of the Great Vessels of the Neck in an 18-Month-Old Infant." Open Access Surgery, 16:55–60. (Dove Press)

[3] Odhiambo WA et al. (2021). "Massive Cervico-Lingual Cystic Hygroma." Annals of African Surgery. (African Journals Online)

[4] Laniewski SC et al. (2023). "Prenatal Evaluation of a Fetal Cystic Hygroma: An Unexpected Finding of a De Novo Fetal BRCA1 Deletion." Reproductive Medicine, 4(4):242–247. (MDPI)

[5] Omisakin OO et al. (2021). "Cystic Hygroma of the Neck: A Case Report and Review of Literature." Otolaryngology Online Journal, 11(3). (Allied Academies)

[6] Nasr B et al. (2021). "Cystic Hygroma of the Neck in Adult Patient." Journal of Surgery and Research, 4:778–783. (Fortune Online)

[7] Yadav S et al. (2022). "Embryological Basis of Cystic Hygroma: A Case Report." International Journal of Clinical Pediatric Dentistry, 15(6):774–778. (PubMed)

[8] Natarajan SB, Baalann KP. (2022). "A Rare Case of Cystic Hygroma of the Neck." Pan African Medical Journal, 43:83. (Pan African Medical Journal)

[9] Tsegaye MA et al. (2024). "A Rare Case Report: An Early Second Trimester Cystic Hygroma with Hydrops Fetalis." Radiology Case Reports, 20(1):632–636. (PMC)

[10] Askarpour S et al. (2024). "Cervical Cystic Hygroma in Adults: A Case Report." Journal of Medical Case Reports, 18:311. (BioMed Central)

[11] Natarajan SB, Baalann KP. (2022). "A Rare Case of Cystic Hygroma of the Neck." Pan African Medical Journal, 43:83. (Pan African Medical Journal)