Open Access Library Journal
2025, Volume 12, e14286
ISSN Online: 2333-9721
ISSN Print: 2333-9705

Cystic Lymphangioma in Children: A Report of 2 Cases Treated at Kamenge University Hospital

Sixte Nderagakura[1], Gordien Ngendakuriyo[1], Jean-Claude Seza Kandjoka[2], Octave Murisho[1], Lionel Horugavye[1], Josué Ndayishemeze[1]

[1]ENT Department, Kamenge University Hospital, Bujumbura, Burundi
[2]ENT Department: Kira Hospital, Bujumbura, Burundi
Email: *sixtenderagakura@gmail.com

How to cite this paper: Nderagakura, S., Ngendakuriyo, G., Kandjoka, J.-C.S., Murisho, O., Horugavye, L. and Ndayishemeze, J. (2025) Cystic Lymphangioma in Children: A Report of 2 Cases Treated at Kamenge University Hospital. *Open Access Library Journal*, **12**: e14286.
https://doi.org/10.4236/oalib.1114286

Received: September 15, 2025
Accepted: November 14, 2025
Published: November 17, 2025

Abstract

The article details the surgical treatment of two infants with cystic lymphangioma, a rare, non-cancerous mass, at Kamenge University Hospital. Both children had a neck mass that was present from birth. The diagnosis was confirmed through a combination of a physical exam and imaging, but the final, certain diagnosis was made after the mass was surgically removed and examined. The operations were successful, and both patients had great recoveries. The authors concluded that surgery is their preferred and most effective treatment option.

Subject Areas

Otorhinolaryngology

Keywords

Cystic Lymphangioma, Kamenge University Hospital

1. Introduction

The lymphatic system forms a vascular network that is essential for the proper functioning of the immune system. It contributes to the elimination of cellular waste and the neutralization of certain pathogenic substances, particularly bacteria.

Cystic lymphangioma is a benign tumor that most often occurs in children. It manifests as cysts derived from the endothelial lining of lymphatic vessels, containing lymph and sometimes traces of blood [1].

Cystic lymphangiomas can occur in various anatomical locations, but the most frequent is exclusively cervicofacial, and their clinical presentation is generally very early [2].

There are three main forms of lymphangiomas: macrocystic, microcystic, and mixed [3] [4].

Diagnosis is primarily based on clinical observation combined with medical imaging findings. Definitive confirmation is provided by histopathological analysis of the lesion after surgical removal. Although surgery remains the standard treatment, other therapeutic approaches have been described, including sclerotherapy and laser vaporization [4]-[6].

This work aims to describe the clinical and therapeutic characteristics of two cases operated on at the University Hospital Center of Kamenge.

2. Materials and Methods

This is a prospective descriptive study of 2 cases conducted over a period of 2 years, from January 1, 2023, to December 31, 2024, at the Kamenge University Hospital Center.

These two cases represent the entire series of consecutive pediatric lymphangiomas surgically managed by the ENT Surgery department at Kamenge University Hospital during the study period.

The data sources were the medical follow-up records of patients who were seen in the ENT department of the hospital.

3. Results

Case 1

This is a 2-month-old female infant who was seen in the ENT department of Kamenge University Hospital for a right lateral cervical swelling. The parents reported that the mass was present at birth and had progressively increased in size.

On physical examination, there was a right lateral cervical mass measuring 22 cm × 14 cm, soft in consistency, painless, compressible, and non-pulsatile, with normal overlying skin appearance (Figure 1).

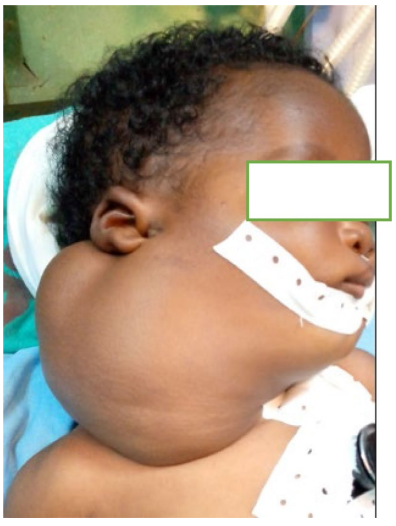

Figure 1. Cervical cystic lymphangioma in a 2-month-old infant.

Respiratory rate was 30 cycles/min, and the heart rate was regular at 140 beats/min. The rest of the physical examination was normal.

From a biological standpoint, hemoglobin was 15 g/dL, and other blood cell lines were within normal limits.

Cervical ultrasound revealed a large right anterolateral cervicofacial solid-cystic mass, predominantly cystic, containing vascularized tissue components on Doppler imaging, highly suggestive of a cystic lymphangioma as the primary diagnosis.

A cervical X-ray showed a cervical mass with a rounded water-density opacity with blurred internal borders and slight leftward tracheal deviation.

Under general anesthesia, a right lateral cervicotomy was performed. After dissection of the cystic mass encasing the right common carotid artery, the mass was excised while preserving surrounding anatomical structures (**Figure 2** and **Figure 3**).

Postoperative recovery was uneventful. The child was monitored in the hospital for 3 days under antibiotic and analgesic treatment and discharged on the 4th day.

The surgical specimen was sent to the pathology department, where histological examination confirmed the diagnosis of cystic lymphangioma.

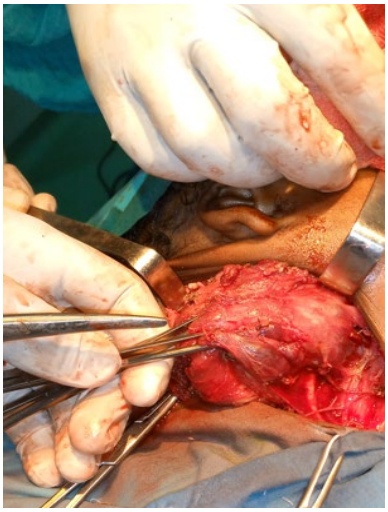

Figure 2. View of the mass encasing the right common carotid artery.

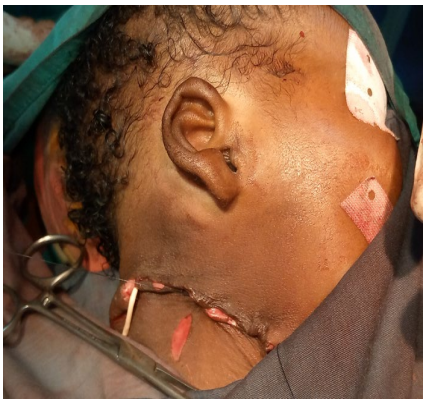

Figure 3. View of the patient at the end of the operation.

Case 2

This is a 6-month-old male infant who presented to the ENT department of CHUK for a progressively enlarging anterior cervical swelling present since birth. The swelling was soft in consistency, non-pulsatile, painless, and mobile relative to the underlying plane, with normal overlying skin appearance (Figure 4).

His respiratory rate was 30/min, heart rate was 120 beats/min, and the rest of the physical examination was unremarkable.

A cervical ultrasound was performed, revealing a multiloculated cystic mass with areas of mixed composition. The vascular structures of the neck were normal.

The thyroid gland had a normal echotexture.

A cervicotomy was performed through a Kocher incision complemented by a Paul André incision, and the lesion was completely excised (Figure 5).

Postoperative recovery was uneventful. Histopathological examination of the surgical specimen (Figure 6) confirmed the diagnosis of cystic lymphangioma.

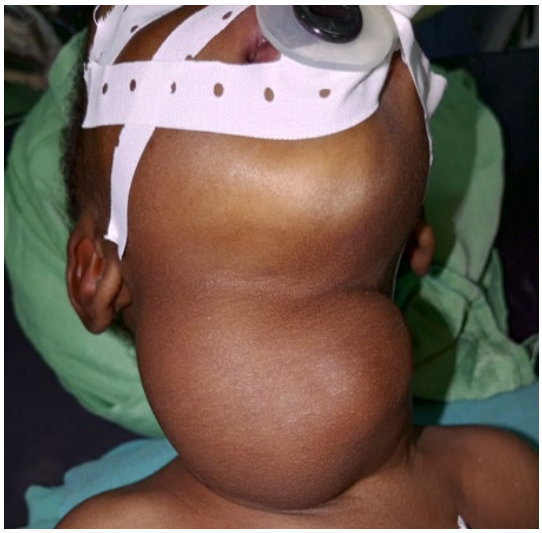

Figure 4. Cervical lymphangioma.

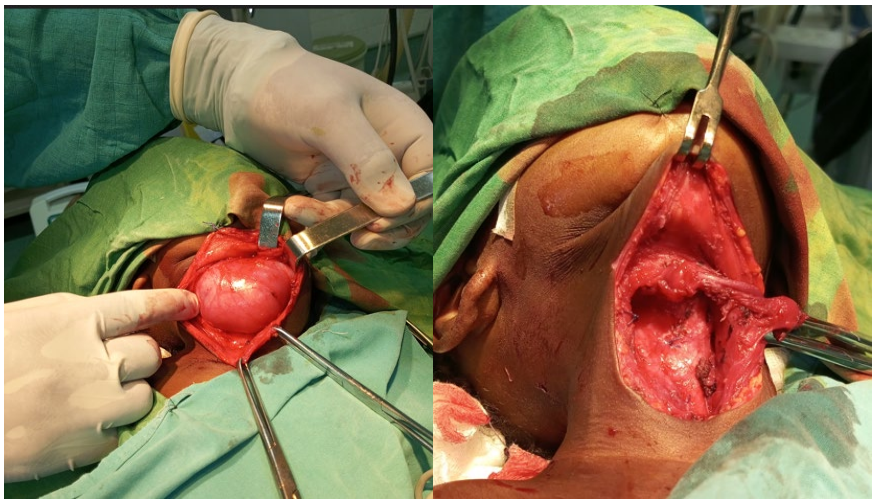

Figure 5. Intraoperative view.

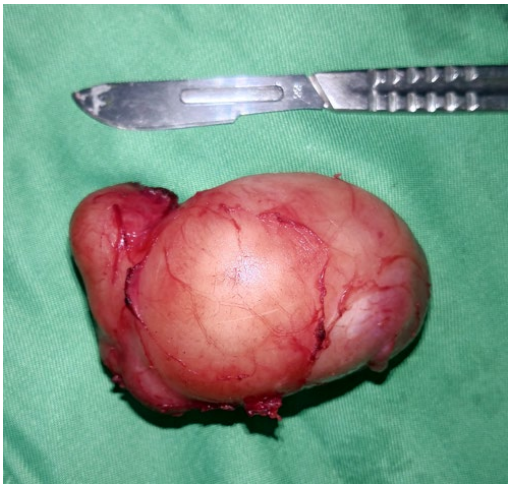

Figure 6. The surgical specimen.

4. Discussions and Literature Review

Cystic lymphangiomas are rare benign tumors, accounting for approximately 6% of all benign tumors diagnosed in children [2] [3].

From an etiopathogenic perspective, two main theories are described in the literature. The first, known as the traumatic theory, suggests that these lesions may result from obstruction or damage to the lymphatic system [7]. The congenital origin theory is now more commonly accepted to explain the formation of lymphangiomas. It suggests that an embryonic lymphatic sac, isolated from the rest of the lymphatic system, gradually fills with lymph [8]. The absence of connections (anastomoses) between normal lymphatic vessels and this malformed structure leads to fluid accumulation, resulting in the formation of the lesion [3].

In our series, one patient was male and the other female; no racial or sex predisposition is reported in the literature, with variations depending on the study [1].

The cervical region is the most frequently observed location in children, with about 90% of cases diagnosed before the age of 20. However, due to the often slow and silent progression of the lesion, diagnosis can occur at any age. Other sites, although rarer, have been reported in the literature, including the spleen, colon, retroperitoneum, and spermatic cord [8] [9].

The preferential location of these lymphangiomas remains the posterior cervical triangle, with the possibility of mediastinal extension in 10% of cases [10] [11].

In our series, one was located in the right lateral cervical region, and the other in the anterior cervical region.

From a diagnostic perspective, prenatal ultrasound allows for the diagnosis of cystic lymphangiomas in one-third of cases [12]. Postnatal diagnosis is purely clinical [1].

It is made in the presence of a painless cervical swelling, soft in consistency, present since birth or within the first months of life. This was the mode of discovery for our two patients. The swelling was present at birth and gradually increased

in size.

From a paraclinical standpoint, cervical ultrasound guides the diagnosis and shows hypoechoic cystic images separated by echogenic walls [1].

In our patients, an ultrasound showed macrocystic hypoechoic formations in one and mixed components in the other. Macrocystic lymphangiomas appear to be the most frequent in the literature and have a better prognosis [13].

A cervical X-ray was performed for the first case and revealed this cervical mass, appearing as a rounded, water-density opacity with blurred internal borders and slight tracheal deviation to the left.

In about 25% of cases, sudden and unexpected complications of hemorrhagic, inflammatory, or infectious origin may occur, causing compressive effects related to a mass syndrome [14]. For our two cases, no signs of compression were present, and the general condition was stable.

From a therapeutic standpoint, several techniques have been proposed. For macrocystic lymphangiomas, sclerotherapy remains the treatment of choice nowadays. Although this technique may be somewhat less effective than surgery, it presents fewer side effects and complications [4]-[6].

However, this technique requires a well-trained team and good access to injectable agents.

Most authors recommend surgery as the first-line treatment. This is the case for Miloundja *et al.* and Hartl *et al.* [2] [15].

Although sclerotherapy is typically the preferred initial therapy, we favored primary surgical excision due to the lesions' well-demarcated, macrocystic structure. This allowed for complete resection with healthy margins and low risk to adjacent tissues. Furthermore, surgery provided a potentially faster cure rate than the multiple, iterative treatments often required by sclerotherapy for macrocystic lesions with a solid component [16] [17].

The management of our two patients was surgical: for the first, a right lateral cervicotomy was performed, allowing good dissection planes and complete excision of the cystic mass, including a part encasing the common carotid artery.

For the second procedure, a Paul-André incision was complemented by a Kocher incision, and the mass was dissected and completely excised.

Histopathological examination confirmed the diagnosis of cystic lymphangioma.

Our approach aligns with that of other authors, such as Handa R. *et al.* and Alqahtani A. *et al.*, who recommend that treatment of cystic lymphangiomas of the neck is primarily surgical, with definitive diagnosis established by histopathological examination [8] [18].

Postoperative courses were uncomplicated, and were discharged on postoperative days 3 and 4, respectively.

Both patients received systematic outpatient follow-up at one and three months post-discharge. Neither assessment documented any local recurrence, late complications, or functional/aesthetic sequelae.

5. Study Limitations

The study's primary limitations are its very small sample size (N = 2), which prevents statistical generalization, and its single-center design. Furthermore, the lack of long-term follow-up data (beyond three months) hinders a definitive assessment of the risk of late recurrence.

6. Conclusions

Cystic lymphangioma of the neck in children is a rare benign congenital tumor.

Diagnosis can be made prenatally by ultrasound or postnatally. Management remains surgical in our practice, and the definitive diagnosis relies on histological analysis of the surgical specimen, which is the only method to confirm the nature of the lesion with certainty. Short- and long-term postoperative outcomes are often excellent.

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] Pierrot, S., Manach, Y. and Couloigner, V. (2011) Lymphangiomes cervicofaciaux: Imagerie, diagnostic et traitement. *EMC—Oto-rhino-laryngologie*, **26**, 1-7. https://doi.org/10.1016/s0246-0351(11)56066-0

[2] Miloundja, J., Manfoumbi Ngoma, A.B., Mba Ella, R., Nguema Edzang, B. and N'Zouba, L. (2007) Lymphangiomes kystiques cervicofaciaux de l'enfant au Gabon. *Annales d'Otolaryngologie et de Chirurgie Cervico-faciale*, **124**, 277-284. https://doi.org/10.1016/j.aorl.2007.03.006

[3] Wiegand, S., Eivazi, B., Barth, P.J., von Rautenfeld, D.B., Folz, B.J., Mandic, R., *et al.* (2008) Pathogenesis of Lymphangiomas. *Virchows Archiv*, **453**, 1-8. https://doi.org/10.1007/s00428-008-0611-z

[4] Acevedo, J.L., Shah, R.K. and Brietzke, S.E. (2008) Nonsurgical Therapies for Lymphangiomas: A Systematic Review. *Otolaryngology—Head and Neck Surgery*, **138**, 418-424. https://doi.org/10.1016/j.otohns.2007.11.018

[5] Giguère, C.M., Bauman, N.M. and Smith, R.J.H. (2002) New Treatment Options for Lymphangioma in Infants and Children. *Annals of Otology, Rhinology & Laryngology*, **111**, 1066-1075. https://doi.org/10.1177/000348940211101202

[6] Okazaki, T., Iwatani, S., Yanai, T., Kobayashi, H., Kato, Y., Marusasa, T., *et al.* (2007) Treatment of Lymphangioma in Children: Our Experience of 128 Cases. *Journal of Pediatric Surgery*, **42**, 386-389. https://doi.org/10.1016/j.jpedsurg.2006.10.012

[7] Ali, E., Karim, N., Hicham, A. and Mohamed, Z. (2016) Le lymphangiome kystique du plancher buccal étendu a la région sous mandibulaire de l'adulte. *Pan African Medical Journal*, **24**, Article 202. https://doi.org/10.11604/pamj.2016.24.202.8395

[8] Handa, R., Kale, R. and Upadhyay, K.K. (2004) Isolated Mediastinal Lymphangioma Herniating through the Intercostal Space. *Asian Journal of Surgery*, **27**, 241-242. https://doi.org/10.1016/s1015-9584(09)60042-7

[9] Poyraz, A.S., Kilic, D., Hatipoglu, A., Ozulku, M., Sar, A. and Bilezikci, B. (2004) Cystic Lymphangioma Confined to Mediastinum in an Adult. *The Japanese Journal*

of Thoracic and Cardiovascular Surgery, **52**, 567-569. https://doi.org/10.1007/s11748-004-0024-0

[10] Diallo, A.O., Touré, B.M., Keïta, A., Fofana, N., Camara, S. and Sylla, A.V. (2013) Le lymphangiome cervicofacial congénital de l'enfant au CHU de Conakry: Analyse de trois cas. *Journal Africain du Cancer/African Journal of Cancer*, **5**, 209-215. https://doi.org/10.1007/s12558-013-0265-x

[11] Rakotosamimanana, J., Raharisolo Vololonantenaina, C., Ratovoson, H., Ahmad, A. and Razafindramboa, H. (2000) Lymphangiome kystique cervico-médiastinal: À propos d'un cas et revue de la littérature. *Archives de l'Institut Pasteur Madagascar*, **66**, 61-64.

[12] Avni, F.E., Massez, A. and Cassart, M. (2009) Tumours of the Fetal Body: A Review. *Pediatric Radiology*, **39**, 1147-1157. https://doi.org/10.1007/s00247-009-1160-6

[13] Bloom, D.C., Perkins, J.A. and Manning, S.C. (2004) Management of Lymphatic Malformations. *Current Opinion in Otolaryngology & Head and Neck Surgery*, **12**, 500-504. https://doi.org/10.1097/01.moo.0000143971.19992.2d

[14] Brasseur, A., Seryer, D., Plancq, M.C., Krim, G., Lanta, S. and Le Blanche, A. (2009) Lymphangiome kystique thoraco-brachial dans le syndrome de Protée: Diagnostic anténatal et suivi par IRM. *Journal de Radiologie*, **90**, 608-611. https://doi.org/10.1016/s0221-0363(09)74028-4

[15] Hartl, D., Roger, G. and Garabédian, E.N. (2001) Traitement des lymphangiomes cervicofaciaux. Elsevier, 6.

[16] Zhang, S., *et al.* (2023) Surgical Management of Pediatric Cervicofacial Lymphatic Malformations: 10-Year Experience and Outcomes Analysis. *International Journal of Pediatric Otorhinolaryngology*, **172**, Article ID: 111728.

[17] Huerta, C.T., *et al.* (2024) Management and Outcomes of Pediatric Lymphatic Malformations: A systematic Review from the APSA Outcomes and Evidence-Based Practice Committee. *Journal of Pediatric Surgery*, **59**, Article ID: 161589.

[18] Alqahtani, A., Nguyen, L.T., Flageole, H., Shaw, K. and Laberge, J. (1999) 25 Years' Experience with Lymphangiomas in Children. *Journal of Pediatric Surgery*, **34**, 1164-1168. https://doi.org/10.1016/s0022-3468(99)90590-0