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Original Article

Epidemiological Profile of Infantile Vascular Anomalies in Douala

Les Anomalies Vasculaires Infantiles à Douala : Profil Épidémiologique

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ABSTRACT

Introduction. Vascular birthmarks are commonly encountered in children and are classified as either vascular tumours or vascular malformations. Infantile haemangiomas are the most common vascular tumours occurring in 5%–10% of Caucasian infants and develop more commonly in cases of female infants. **Method.** We carried out a retrospective descriptive study over a period of 4 years (20 august 2020 - 28 July 2024). Data collection was done using consultation registers. **Results**. During the study period, 39 (0.29 %) of 13368 patients were consulted for infantile vascular anomalies, amongst whom we had more girls 0.17% (n=23) than boys 0.12% (n=16) (sex ratio: 0.69). The most common age group was infants aged 28 days to 23 months. We had 34(0.26%) cases of infantile haemangiomas (female-dominated 0.16%), 3 (0.02%) cases of pyogenic granulomas, one case of Klippel-Trenaunay syndrome and one case of venous malformation. **Conclusion**. As in other sub-Saharan African countries, in our study, infantile vascular anomalies are rare with a high prevalence of infantile haemangiomas. Decentralized continuing medical training in health structures would greatly contribute to early diagnosis.

RESUME

Introduction. Les anomalies vasculaires neonatales sont fréquemment rencontrées chez les enfants et sont classées soit en tumeurs vasculaires ou en malformations vasculaires. Les hémangiomes infantiles sont les tumeurs vasculaires les plus courantes, présentes chez 5 à10 % des nourrissons caucasiens, ils se développent plus fréquemment chez les nourrissons de sexe féminin. **Matériel et méthode**. Nous avons réalisé une étude descriptive rétrospective sur une période de 4 ans (20 août 2020 - 28 juillet 2024). La collecte des données a été réalisée à l'aide des registres de consultation. **Résultats**. Durant la période d'étude, 39 (0,29 %) des 13368 patients ont consulté pour des anomalies vasculaires infantiles, parmi lesquels nous avions plus de filles 0,17 % (n=23) que de garçons 0,12 % (n=16) (sex-ratio: 0,69). La tranche d'âge la plus consultée était celle des nourrissons (âgés de 28 jours à 23 mois). Nous avons rapporté 34 (0,26%) cas d'hémangiomes infantiles (prédominance féminine 0,16%), 3 (0,02%) cas de granulomes pyogènes, 1 cas de syndrome de Klippel-Trenaunay et 1 cas de malformation veineuse. **Conclusion**. Tout comme dans d'autres pays d'Afrique subsaharienne, dans notre étude, les anomalies vasculaires infantiles sont rares avec une forte prévalence d'hémangiomes infantiles. Une formation médicale continue décentralisée dans les structures de santé contribuerait grandement à un diagnostic précoce.

INTRODUCTION

The International Society for the Study of Vascular Anomalies classifies vascular anomalies into vascular tumours and vascular malformations [1]. Vascular tumours are defined as vascular neoplasms caused by the proliferation and hyperplasia of abnormal endothelial and other vascular cells, while vascular malformations are defined as congenital developmental disorders consisting of capillary, lymphatic, venous, and arterial vessel [1, 2].

Vascular tumours are classified as benign, locally aggressive or borderline, or malignant. [3,4] Benign vascular tumours include Infantile haemangiomas (IHs), congenital haemangiomas, tufted haemangioma, spindle-cell haemangioma, epithelioid haemangioma, and pyogenic granuloma (also known as lobular capillary haemangioma) [3].

IHs are the most common vascular tumours occurring in 5%–10% of Caucasian infants and develop more commonly in cases of female infants [1, 5].

Pathologically, IHs are glucose transporter-1 protein (GLUT-1) positive, [1, 2].

IHs are classified as superficial, deep, or mixed (superficial+deep) types [1]. IHs it is not present at birth, usually develop during the first 1–2 weeks of age, proliferate during the first 1–3months of age, finish proliferating at 5 months of age, and then spontaneously involute into the adipose and fibrous tissue until around 4 years of age but sometimes up to 10 years of age [6,7]. Potentially high-risk IHs include those with life-threatening complications, functional impairment, ulceration, associated structural anomalies, and disfigurement [1, 8]. Most IHs can be diagnosed clinically and physical examinations [1]. Ultrasound with Doppler is the imaging modality of choice for IHs assessment and is recommended when the diagnosis of IHs is uncertain [8, 9]. The IHs management guideline recommend oral propranolol as the first-line treatment for high-risk IHs [8]. Vascular malformations are present at birth, may not be detectable clinically, and do not show a proliferative or involutive phase after birth; rather, they grow proportionately with the child or expand hemodynamically due to infection, trauma, or hormonal changes and are pathologically GLUT-1–negative. [1]. Vascular malformations are classified as simple or combined vascular malformations, of the major vessels, and vascular malformations associated with other anomalies. [1] Simple vascular malformations are sub-grouped as slow blood flow (capillary, lymphatic, venous malformations) or fast blood flow (arteriovenous malformations, arteriovenous fistula) depending on the blood flow. [1]

Painful or symptomatic vascular malformations may be treated with sclerotherapy, sirolimus, surgical excision, laser ablation, or embolization. [1,2] Compression stockings, hydrotherapy, and lymphatic massage can be used as adjunctive therapy [1]

Cameroon being a country with limited resources, the objective of this study was to describe the epidemiological profile of infantile vascular anomalies (IVA) received in dermatology consultation at the Laquintinie hospital in Douala.

METHODS

The site selected for this study was Laquintinie Hospital Douala. This is a hospital that serves the population of the economic capital of Cameroon, Douala. Laquintinie is located in Douala I subdivision and receives averagely 150 000 patients per year. We carried out a retrospective descriptive study over a period of 4 years (20 August 2020 - 28 July 2024). Data collection was done using consultation registers. The diagnosis of infantile vascular anomalies was made based on anamnestic and clinical criteria.

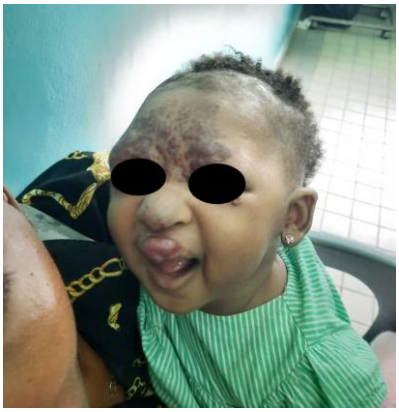
For each patient under 18 years of age, the following data, were systematically specified: age, gender, residence; profession. The cases diagnosed in other services such as pediatric unit were mostly referred to dermatology for better management. Nevertheless, patients with incomplete data were excluded from the study. Follow-up visits were excluded from the analysis. Administrative clearance was obtained from the Director of the Laquintinie Hospital Douala. Ethical clearance was not requested since this research involves existing hospital data, codified and anonymized. SPSS version 20 was used for statistical analyses.

RESULTS

During the study period, 39 (0.29 %) of 13368 patients received in dermatology consulted for IVA. Among them, we had 34(0,26%) cases of infantile haemangiomas, three (0,02%) case of pyogenic granulomas, one case Klippel-Trenaunay syndrome and one case of veinous malformation (table 1).

Table 1: Distribution according to the type of vascular malformation and sex

Vascular malformations	Male	Female	Total
Infantile Haemangioma	12 (0.01%)	22 (0.16%)	34 (0.26%)
Pyogenic Granuloma	3 (0.02%)	0	3 (0.02%)
Klippel Trenaunay Syndrome	0	1 (0.005%)	1 (0.005%)
Veinous malformations	1 (0.005%)	0	1 (0.005%)



Picture 1: Mixed infantile hemangioma of the forehead and upper lip (before the treatment)

We receive more girls 0, 17% (n=23) than boys 0, 12% (n=16) with M/F ratio: 0, 69. (table 2).

Table 2: Distribution according to the age group and sex

Group of age	Male	Female	Total
0 - 27 days	0	0	0
28 days - 23 months	9 (0.07%)	12 (0.09%)	21 (0.16%)
2 years - 11 years	7 (0.05%)	11 (0.08%)	18 (0.13%)
12 years - 17 years	0	0	0
Total	16 (0.12%)	23 (0.17%)	39 (0.29%)

The mean age, in our overall sample population, was 42,95 months with a median age of 12 months and an age range of 1 month–168 months (14 years). The most common age group consulting was infants (aged between 28 days to 23 months), 0.16% (n = 21) (table 2). The majority of our patient was not going to school, 0.18% (n=24) (figure 1).

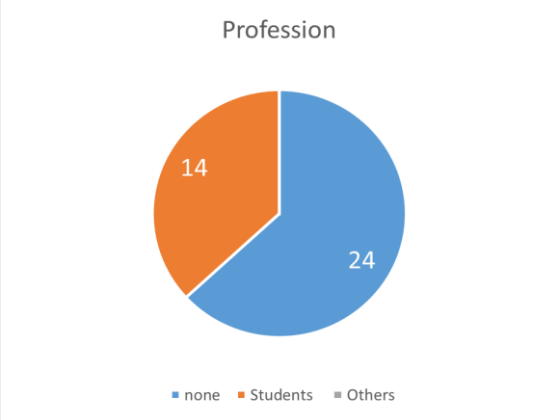


Figure 1: Distribution according to the profession

Most of our patients were living in Douala V subdivision (*n* = 13, 0, 10%), and Douala III (*n*=13, 0,10%), followed by Douala I (*n*=5, 0,04%), Douala II (n=4, 0,03%), and Douala IV (*n*=3, 0,02%) as shown in Figure 2.

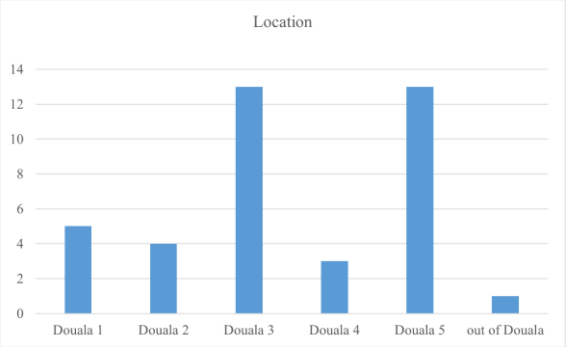
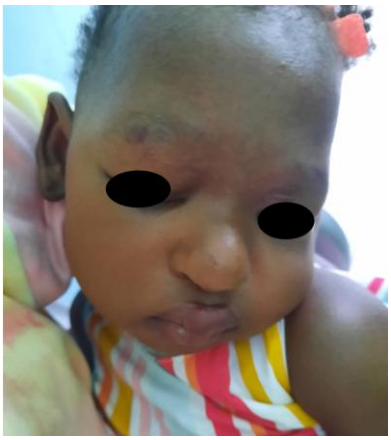
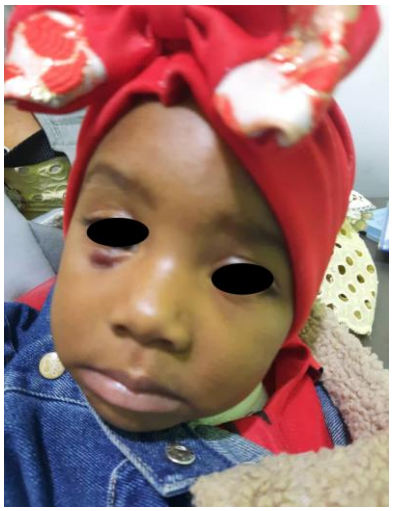


Figure 2: Distribution according to place of residence



Picture 2: Mixed infantile hemangioma of the forehead and upper lip (After 6 months of oral Propranolol)



Picture 3: Deep infantile hemangioma of the right lower eyelid

DISCUSSION

We conducted a retrospective study on IVA in a hospital population, which may not reflect the entire general population. The diagnosis was made on the basis of anamnestic and clinical criteria due to the unavailability of paraclinical assessments in our region.

The prevalence of IVA was low in our study (0.29%), there was a large number of IHs (34/39) this observation was also made in the team of Akakpo et al in Togo in 2017 [10].

Prevalence of IHs in our study was 0.31% predominantly female (0.16%), this is in line with most studies conducted in Africa. [11,12,13]. On the other hand, this prevalence is lower than that found in Europe or depending on the country, it varies between 5 and 10% [1,14]. This can be explained by the fact that the colour of haemangiomas in patients with dark phototypes does not often have the bright re.d character described in the literature. This dark phototype can also hide small haemangiomas which go unnoticed during consultations in our health structures or even sometimes underdiagnosed due to ignorance. Other benign vascular tumours were not reported in our study, this is due to the fact that they went unnoticed or were probably not mentioned in the consultation records by the doctors. We also reported 1 case of Klippel Trenaunay syndrome compared to 4 cases in Akakpo et al [10]. Klippel Trenaunay syndrome is a very rare and complex disorder described in 1990, made up of capillary, lymphatic and venous malformations with overgrowth of the affected limbs. Genetic research has confirmed that a mutation in the PIK3CA gene has been implicated in Klippel Trenaunay Syndrome, and members of the related limb overgrowth spectrum [15].

Most of our patients lived in Douala 3 and 5 subdivisions, which corresponds to the most popular subdivision of the city of Douala.

The most common age group consulted was infants (aged between 28 days to 23 months), 0.16% (n = 21) and were not yet in school, which is a normal finding because it

corresponds to the age of appearance and proliferation of IVA particularly IHs.

CONCLUSION

Infantile vascular malformations remain rare and underdiagnosed in our country as in other countries of sub-Saharan Africa; with a high prevalence of infantile haemangiomas. Poverty, difficulty accessing health care and ignorance are possible explanations; most only consult for complications in our context. Decentralized continuing medical training in health structures would greatly contribute to early diagnosis

AUTHORS' CONTRIBUTIONS

Sigha Odette Berline: conceptualization, data curation, formal analysis, writing original draf, writing–review and editing.
Mantho Fopa Pauline, Ekambi Kotto Rose, Nkoro Grâce Anita, Mandeng Ma Linwa Edgar, Kouotou Emmanuel Armand: data curation, writing–review and editing.

CONFLICTS OF INTEREST

The authors declare no conflict of interest

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ETHICAL CONSIDERATIONS

All stages of the work were carried out in compliance with the Declaration of Helsinki. Consent was obtained prior to publication.

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