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Malignant Hypertensive Retinopathy Revealing Bilateral Renal Atrophy in Adolescent at Chu-Campus of Lomé

Kassoula Batomaguela Nonon-Saa, Abbevi Eli Abbey, Dadjo Amouzou*, Nidain Maneh, Adam Nouhou Diori, Isreal Tchodjoou, Regine Mewamba Wamba, Kokou Vonor, Kokou Messan Amedome, Koffi Didier Ayena, Komi Balo

Ophthalmology Department, University Hospital Center, Lomé, Togo

Email address:

nononsaap@yahoo.fr (K. B. Nonon-Saa), elieabbey90@gmail.com (A. E. Abbey), dadjooson@gmail.com (D. Amouzou), manehnid@hotmail.fr (N. Maneh), adamslalou@gmail.com (A. N. Diori), tchodjoouisrael@gmail.com (I. Tchodjoou), regwamba@gmail.com (R. M. Wamba), benvonor@gmail.com (K. Vonor), amedomekokoumessan@gmail.com (K. M. Amedome), didierayena@gmail.com (K. D. Ayena), komibalo@yahoo.fr (K. Balo)

*Corresponding author

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Abstract: Malignant hypertension, which was defined as the association of a severe elevation of blood pressure with retinopathy stage III or IV according to KEITH and WAGENER, now takes into account the involvement of the noble organs such as central nervous system, heart and kidneys. It is this attack that determines the severity, urgency and vital prognosis of this pathology. Uncommon in children and teenagers, malignant hypertension often secondary, involving kidney in the most cases. It is a therapeutic emergency because it is at risk to progress into hypertensive encephalopathy, stroke, acute renal failure, or heart failure, all of which represent its usual pattern of discovery. We report the case of malignant hypertension in a teenager without personal pass history of hypertension. The singularity of this report case is the uncommon mode of his discovery: isolated bilateral visual impairment. This clinical case challenges us and reminds the interest of the funduscopic examination during ophthalmological consultation, and teaches us that taking the blood pressure of a teenager who consults for an isolated bilateral decrease of vision is not without interest. Early recognition and management of malignant hypertension, are fundamental to any improvement in prognosis of this serious disease.

Keywords: Malignant Hypertension, Neurorerinitis, Renal Atrophy

1. Introduction

Malignant hypertension is defined by the association of severely elevated blood pressure (blood pressure above 180 mm Hg/120 mm Hg) with a Keith and Wagener stage III or IV retinopathy. It may occur in a person with known or unknown hypertension, treated or untreated [1-3]. Nevertheless, this definition should be reconsidered as Cremer et al. [4]; rightly point out in their study. In fact, this definition does not take into account the damage caused by the severe elevation of blood pressure on the target organs, which are the central nervous system, the heart and the kidneys. It is this attack that determines the severity, urgency and vital prognosis of this pathology [4]. It is an uncommon disease in adults and even scarce in children or adolescents [5-7]. Because the risk to progress into hypertensive encephalopathy, stroke, progressive renal failure, or heart failure, all of which represent its usual pattern of discovery; it is a therapeutic emergency [4, 8, 9].

We report the case of a malignant hypertension in a teenager without personal pass history of hypertension, and who has an uncommon mode of discovery: a bilateral and isolated decline of visual acuity.

2. Observation

It was a 19-years-olds dressmaker's apprentice brought at the Ophthalmology Department of the CHU-Campus (University Hospital Center of Lomé) by her guardian for a bilateral visual acuity decrease occurred a week ago with quickly progressive installation. She would have presented the days before, difficulties to threading a thread into a needle at work. This incident would have alerted her boss. Add to that, she complained of headaches treated in self-medication as malaria with remission.

The impairment of visual acuity which became a handicap had motivated an ophthalmological consultation. The patient had no particular personal history but her family history make out the fact that her younger brother died at the age of 15 in a context of edematous-ascitic syndrome.

At examination the right eye's visual acuity was 1/10 and Parinaud 15 not improving on the correction attempt. The anterior segment was normal. The lens was clear. Fundoscopy noted papilloedema with generalized narrowing of arteriolar diameter, focal point of flame haemorrhages, cotton-wool spots, hard exudates in the entire field, but mostly concentrated at the level of the macula giving the macular star aspect neuroretinitis (Figure 1).

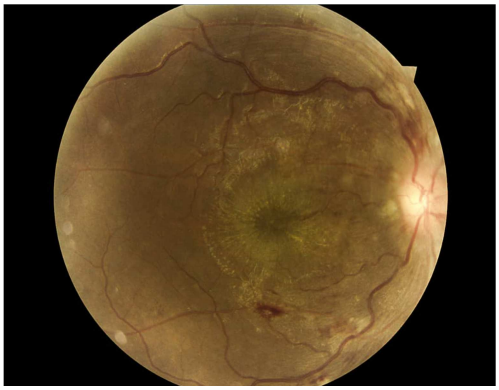

Figure 1. *Right eye retinography.*

The left eye visual acuity was limited to "count fingers at 2 m", Parinaud 15 not improve after correction test. The anterior segment and vitreous were normal. On examination of fundus, the signs were superimposed on those observed on the right eye (Figure 2).

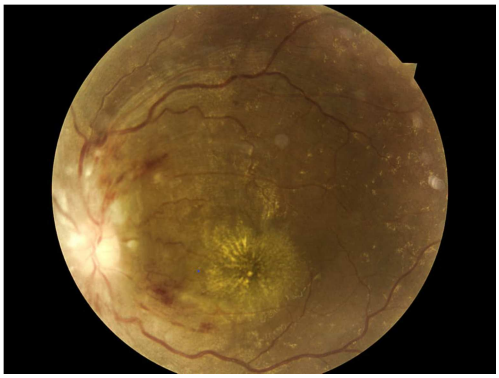

Figure 2. *Left eye retinography.*

In an etiological approach, it was decided the measurement of the blood pressure which noted: 210 mm Hg/130 mm Hg. In front of this blood pressure we conclude to a stage IV of hypertensive retinopathy according to Keith and Wagener classification. The patient was sent immediately to the Cardiological Emergencies. The blood test results were: uremia at 17.9 g/l or 40 times the normal rate; serum creatinine at 97 mg/l, which is 7 times the normal level, with clearance of creatinine at 6.69 ml/min, normal at 87-107 ml/min; severe anaemia at 7.2 g/dl, disturbed phosphocalcic balance with hypocalcaemia at 70 mg/l, and hypoproteinemia.

According to these biological results, the diagnosis of severe chronic renal failure probably due to undetected glomerular nephropathy was discussed. Kidney ultrasonography showed small kidneys moderately dedifferentiated at Stage II: right kidney = 68 × 36 × 24 (mm); Left kidney = 68 × 36 × 24 (mm) giving a bilateral renal atrophy (Figure 3).

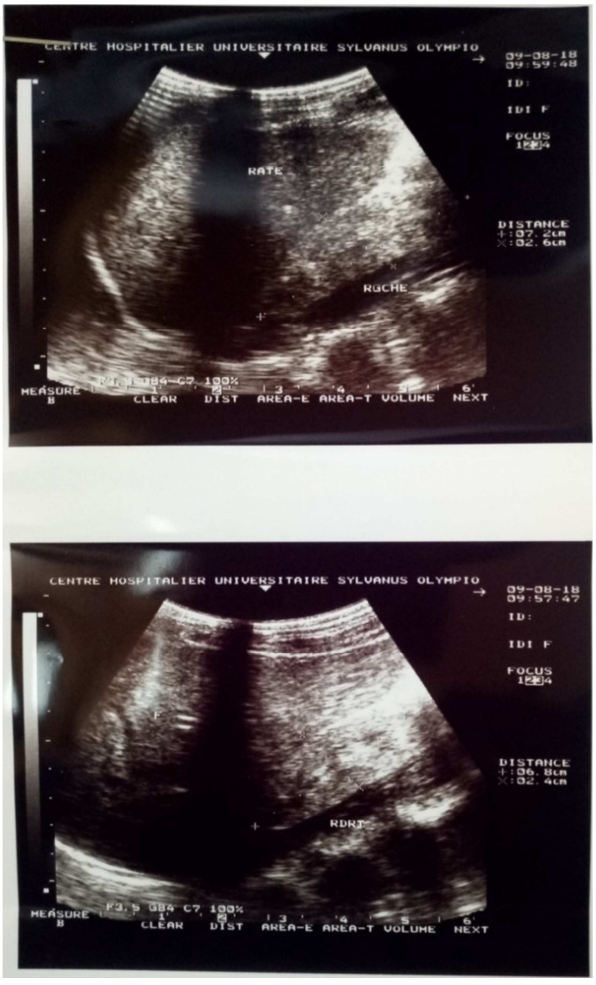

Figure 3. *Renal ultrasound.*

In summary, we conclude to malignant hypertension secondary to chronic renal failure with bilateral renal atrophy.

In front of these cardio-nephrological advanced signs that are life-threatening to the patient, hypertension and renal failure treatment were first to ophthalmic one.

3. Discussions

3.1. At the Clinical Level

The fast progressive bilateral visual acuity impairment motivated the consultation, which allowed us to discover the ophthalmoscopic signs of bilateral neuroretinitis. It was necessary to find the etiology of this one and before undertaking the biological, infectious and other explorations; we took blood pressure and noted 210 / 130 mm Hg at rest in both arms. This has led to the retention of severe hypertensive retinopathy in the context of malignant hypertension, which is usually diagnosed following a complication like hypertensive encephalopathy, stroke, progressive renal failure, cardiac failure [8]. In adolescents, malignant hypertension can occur in different presentations. Some patients will have severe clinical presentations such as heart failure or stroke, while others will be completely asymptomatic for several months [4].

Ophthalmologic manifestations as an isolated sign of discovery of this pathology are rare, which makes the singularity of our clinical case [6, 10]. Lam et al. [11] described a case of malignant hypertension in a 7-year-old girl with pheochromocytoma in the context of Von Hippel-Lindau syndrome. The young patient had isolated bilateral visual acuity impairment, with bilateral papilloedema and macular star at funduscopic examination. Blood pressure, which was normal at the beginning (110/70 mm Hg), had risen within a few days to 224/160 mmHg allowing to retain the diagnosis of a malignant hypertension which one had to look for the cause. They recommended at the time the systematic and repeated taking of the blood pressure whatever the age, in case of neuroretinitis, recommendation that our clinical case consolidated [12]. In addition to that, Maweni et al. [13] in their cohort study in a British hospital about 63 black patients, make the same recommendation.

3.2. Etiologically

The investigation of the etiology of malignant hypertension found chronic renal failure with bilateral renal atrophy. It must be said that renal causes are the first etiology of malignant hypertension in young patients: acute hypertensive glomerulonephritis is described, chronic glomerulonephritis, acute or chronic renal failure and reno-vascular causes [1, 5, 14]. In United statses of America Webb et al. [15] in their study concerning children and adolescents hospitalized for severe hypertensive crisis, note that unlike adults, malignant hypertension is most often secondary to other chronic diseases. Non-renal causes are rarer. Nonetheless, pheochromocytomas: tumors developed at the expense of chromaffin cells of the sympathetic nervous system that secrete a combination of dopamine, nor-epinephrine and adrenaline [8]. Unlike adults with chronic kidney disease, which is considered like consequence of hypertension, in adolescents the reno-parenchymal or reno-vascular pathology makes the bed at hypertension in at least 85% of cases. The prevalence of hypertension secondary to chronic kidney disease in children and teenagers is between 20 and 80% depending on the degree of renal dysfunction [16].

In our patient, the hypertension is malignant and probably due to renal disease which led to renal atrophy then chronic renal failure, thus we are reinforcing data from the literature concerning the link between reno-vascular diseases and the occurrence of malignant hypertension in children and adolescents [14, 16].

4. Conclusion

Malignant hypertension is often related to renal causes in children and adolescents. It remains diagnostic and therapeutic emergency. This clinical case challenges us and reminds the interest of the funduscopic examination during ophthalmological consultation. He teaches us that taking blood pressure in a teenager who is seen for an isolated bilateral visual acuity decrease is not a superfluous act, let alone if the patient's fundoscopy reveals a neuroretinitis. This simple motion will help to avoid missing out a malignant hypertension evolving insidiously, but with serious consequences. Early recognition and management of malignant hypertension, are fundamental to any improvement in prognosis of this pathology.

Conflict of Interest

The authors declare that they have no competing interests.

Contributions of the Authors

All cited authors participated in the writing and / or the correction of this manuscript of which they have approved the final version.

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