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Association between Giant Cell Arteritis and Hyperthyroidism: An Unusual Case Report from Madagascar

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SUMMARY: Giant Cell Arteritis (GCA), formerly known as Horton Disease associated to the hyperthyroidism has been rarely reported. In this paper, we aimed to discuss a case that illustrating such association. The case consisted of 70-year-old woman who complained a sudden diffuse vision loss in the left eye since a week. Laboratory test showed hyperthyroidism. The cerebral CT-scan without contrast media revealed left ischemic stroke complicated by left choroidopathy. GCA and hyperthyroidism are considered independent and their coexistence was attributed to independent processes related to ischemic stroke.

KEYWORDS: Giant Cell Arteritis, Hyperthyroidism, Morbidity association, Madagascar

INTRODUCTION

Giant Cell Arteritis (GCA,) formerly known as Horton Disease has been frequently associated with polymyalgia rheumatic [1] but rarely associated to the hyperthyroidism. The influence of the association between GCA and hyperthyroidism remains unexplained. Its evolution is just unpredictable. In sub-Saharan Africa, few studies describe the association between systemic pathologies. In this paper, our aim was to report a case of GCA associated to hyperthyroidism revealed by left ischemic stroke and complicated by left choroidopathy in order to attract the clinician for the importance of multidisciplinary approach to improve the care.

OBSERVATION

We reported a 70-year-old Malagasy woman who complained a sudden diffuse vision loss in the left eye since a week, associated with deterioration in general condition. She denied neck stiffness, jaw claudication, facial pain, fever, myalgia, or arthralgia. She had no relevant past medical history. The clinical examination at admission found no light perception of the left eye, abolition of the pulse of the left temporal artery. The right vision was normal. The neurological examination revealed the patient to be alert and oriented. She had a normal blood pressure level of 130/80 mmHg, and her pulse was within the normal range at 80 eats/minute. Cardiovascular, respiratory, abdominal and neurological exam were unremarkable. The remainder of her physical examination was within normal limits. Laboratory test showed a dramatic elevated erythrocyte sedimentation rate of the 110 mm the first hour, elevated C reactive protein at 48 mg/dL. The ophtalmology unit was unavailable. Ocular ultrasound revealed left retinal detachment. Temporal artery ultrasound was negative for a halo sign. The cerebral CT-scan without contrast media admnistration revealed left choroidopathy aspects and multifocal cerebral low density lesions (**Figure 1**). Temporal artery biopsy specimen showed giant cell arteritis. There were no histological signs of malignancy. The chest abdominal pelvic CT-scan was normal. Furthermore, an asymetric multi nodular right goiter was noted. Her serum thyroid-stimulating hormone was undetectable 0.05 (normal range, 0.25 to 5 uU/mL) and her free thyroxine was very elevated at 37.89 (normal range, 9 to 20 pmol/L). The cervical ultrasound showed a multi-nodular heterogeneous goiter with bilateral nodules classified Eu Ti Rads 3. Serological test of thyroid autoimmunity was negative. The other laboratory assessment revealed normal cell blood count, electrolytes, liver and kidney function. Workup for other causes of vasculitis, including anti-neutrophil cytoplasmic antibodies, antinuclear antibodies, was negative. The patient's inflammatory and infectious (toxoplasmosis and syphilis serologies) work-up was unremarkable. Malignancy work-up was also negative. Diagnosis of GCA was finally estabilished, associated with hyperthyroidism, complicated

by a multifocal cerebral ischemic stroke and choroidopathy. The patient received a high dose of methylprednisolon for three days, and then oral prednisone® at a dose of 60 mg for the first month, with antithyroid therapy (Prophylthiouraicil) and acetylsalicilic acid. Glucocorticoid has been reduced to prednisone 10 mg /day. The patient was followed more than one year and there was no other new systematic symptoms, but with the permanent blindness of the left eye eventually.

DISCUSSION

The GCA and hyperthyroidism was diagnosed simultaneously, can be sight-threatening and life-threatenng if not promptly and properly treated.

Medical investigations allowed to exclude infectious diseases, malignancies and other rheumatic and vasculitis affections. Thus, clinical and paraclinical data suggested GCA. The diagnostic of GCA was established according to the criteria of the American college of rheumatology in 1990 [1]. So, GCA, as defined by the American college of rheumatology, is a large and medium-sized vessel vasculitis affecting individuals over the age of 50 years that typically presents as new localized headache, temporal artery tenderness, elevated C reactive proteine or erythrocyte sedimentation rate and a positive temporal artery biopsy. Patient course was complicated by cerebral infarction secondary to arteritis either GCA or hyperthyroidism. Furthermore, choroidal ischemia is an ocular vascular accident which is manifested by a sudden visual loss. However, classical causes associated with choroidopathy are pre-eclampsia, malignant hypertension, Vogt-Koyanagi-Harada disease [2]. These pathologies were excluded in our observation. Others rheumatics affections have been excluded such as systemic lupus erythematosus, antiphospholipid syndrome, Gougerot-Sjögren syndrome, systemic sclerosis, nodular periarteritis. In our 70-year-old patient, who did not have arterial hypertension, specific antibodies to other systemic diseases were unremarkable, excluding these pathologies. The most common cause of visual loss in GCA is arteritic anterior ischemic optic neuropathy, followed by other less frequent such as central retinal artery occlusion, choroidal ischemia or posterior ischemic optic neuropathy [2, 3]. Therefore, choroidopathy and retinal detachment were responsible for diffuse visual loss of left eye in our case. In Morocco, in 2011, Ouaggag reported the first case of GCA revealed by exudative retinal detachment associated with optic neuropathy and severe choroidal ischemia in a 54-year-old patient. This author suggested that the retinal detachment was related to a multifocal choroidal occlusion [4]. Although, the pathogenesis of choroidopathy remains unclear, but in our case, the left choroidopathy was secondary to the left ischemic stroke. Clinician should be aware of choroidopathy. Early recognition and proper treatment are important for good prognosis. Although, the diagnosis of stroke secondary to GCA is sometimes difficult to establish between atherosclerosis and arteritis [5, 6]. Medical investigation allowed the diagnosis of an ischemic stroke secondary to arteritis either GCA or hyperthyroidism. Various pathologies have been described to be associated with GCA. In 2004, some study describes a pathology associated with GCA in 43/250 patients including three hyperthyroidisms and an association between hyperparathyroidism and hyperthyroidism. In our patient, the diagnosis of hyperthyroidism and multinodular goiter was established. The another etiology for hyperthyroidism was excluded such as autoimmune thyroiditis, Graves' disease or toxic adenoma. Distinguishing these conditions is desirable, as the treatment of these entities differ. Hyperthyroidism must be recognized to avoid bone destruction secondary to corticosteroids [7]. In 2005, the authors report the coexistence of hyperthyroidism and GCA during an ischemic stroke, but without causal links [8]. Other studies prove the opposite. In 1999, in two series of 101 and 98 patients, prevalence of hyperthyroidism was reported to be six times higher in cases of GCA than in controls [9]. In 2010, Sheu et al, concluded that hyperthyroidism alone is significantly associated with ischemic stroke in adults compared to the control group. So, presence of an ischemic stroke requires thyroid hormone assessement [10].

To our knoweledge, we reported here the first case of GCA associated to hyperthyroidism from Madagascar. This association in African populations is likely to be under-recognized and misdiagnoses, owing to the low biopsy rate. So, GCA has been rarely reported in Sub-saharan Africa and the frequency was underestimated. Furthermore, GCA is a rapid progressive irreversible blindness condition, although very rare in African patients, the high dose of corticosteroid treatment should not be delayed while waiting for the result of biopsy, to prevent the bilateralisation of visual loss.

CONCLUSION

The association between GCA and hyperthyroidism was a reality in our country. These two pathologies are considered independent and their coexistence was attributed to independent processes related to ischemic stroke. Such a subtility may involve difficulties for optimal care. So, GCA with hyperthyroidism, ischemic stroke and choroidopathy are common conditions associated with significant morbidity, mortality and disability, which requires multidisciplinary approach.

Conflict of Interest

There is no conflict of interest to be declared.

Author's Contribution

All authors contributed to project conception and critical review of manuscript. The author (s) read and approved the final manuscript.

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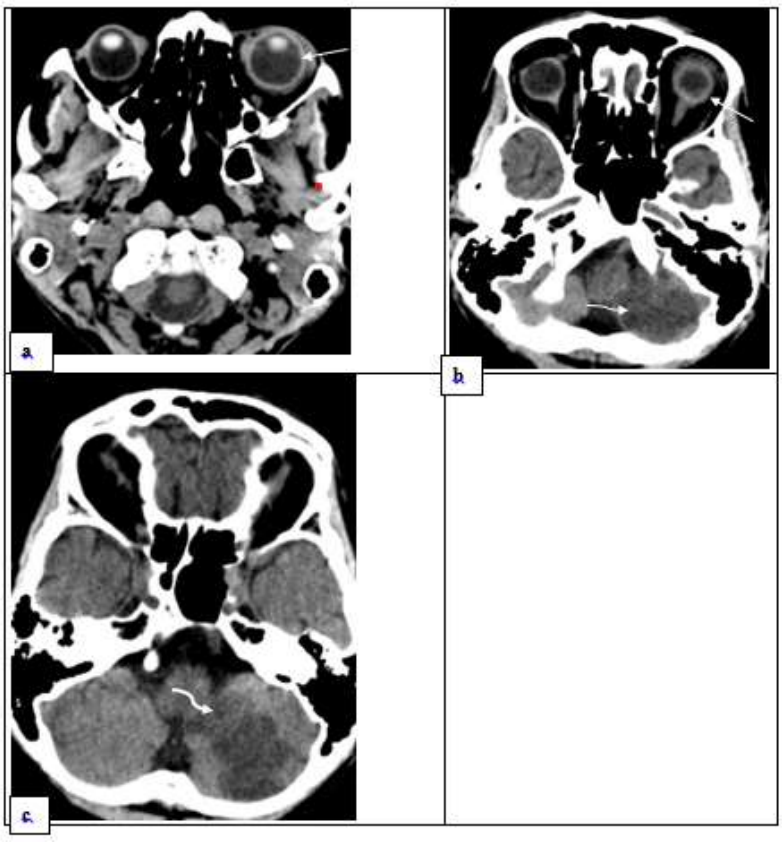

Figure 1 : cerebral CT scan without contrast media, in axial section through the lenses (a) and the cerebellum (b and c), showing a regular circumferential thickening of the left choroid (arrow) and a low density lesion involving the cortex and the sub-cortex in left lower cerebellar and lateral part of the vermis, in the territory of the posterior inferior cerebellar artery (curved arrow).