

## Ophthalmic Presentation of Onchocerca Nodules in a Nigerian Community

Wilson I. B. Onuigbo<sup>1\*</sup> and Ifeoma R. Ezegwui<sup>2</sup>

<sup>1</sup>Department of Pathology, Medical Foundation and Clinic, 8 Nsukka Lane, Enugu, Nigeria

<sup>2</sup>Department of Ophthalmology, University of Nigeria Teaching Hospital, Enugu, Nigeria

\*Corresponding author: Wilson I. B. Onuigbo, Department of Pathology, Medical Foundation and Clinic, 8 Nsukka Lane, Enugu, Nigeria, Tel: +2348037208680; E-mail: wilson.onuigbo@gmail.com

Rec date: Nov 5, 2015, Acc date: Dec16, 2015, Pub date: Dec 24, 2015

Copyright: © 2015 Wilson IB, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

### Abstract

This retrospective study reviewed the clinical and histopathological features of ophthalmic onchocerciasis. The 30-year laboratory records of all the patients of the Igbo ethnic group, whose surgical specimens were received at a Central Pathology Laboratory service in south-eastern Nigeria, West Africa, were reviewed. The cases with the histopathologic diagnosis of onchocerciasis involving ophthalmic tissues were obtained. The data analyzed included age at diagnosis, sex, location and size of specimen, clinical description of lesion and operative diagnosis. There were twenty patients. The male: female ratio was 2.3: 1. The ages ranged from 3 to 50 years, (mean 13 years). The nodule was present from birth in 2 (10.2%\_ patients and was acquired in the rest. It occurred most commonly in the eyelid in 6 patients. There was diagnosis also commonly in terms of cyst rather than nodulation. Accordingly, onchocerca should be included in the differential diagnoses of lesions showing ophthalmic presentation even at birth—the time frame being in consonance with transplacental transmission.

**Keywords** Onchocerciasis; Ophthalmic presentation; Transplacental transmission; Surgical specimens; Nigeria

### Introduction

Recently, Steinkuller [1] pointed out that ophthalmic services in rural Africa are organized as a broad-based pyramid whose apex “is the fully trained ophthalmologist, usually statically based at a large central government hospital.” Incidentally, equally statically based is the pathologist. Therefore, it is the purpose of this paper to add the role of the pathologist.

With reference to onchocerca nodules, this type of ophthalmic lesions appears to be relatively uncommon and has not received much attention in the literature. Thus, much as the filariform lesions, which lead to the notorious “river blindness”, have been stressed in various environments [2-6]. It is necessary also to highlight nodulation especially as regards ophthalmic practice [7].

### Materials and Methods

In keeping with the concept that a histopathologic data pool has merit in epidemiologic studies [8], the laboratory records of all patients of the Igbo ethnic group [9] whose surgical specimens were received at a central laboratory service in south-eastern Nigeria, West Africa, were reviewed for histopathologic diagnosis of onchocerca nodules involving ophthalmic tissues. The period covered was the 30-year stretch from February 20, 1970 to February 19, 2000. These specimens came from government, missionary and private hospitals. The data analyzed included age at diagnosis, sex, location, and clinical diagnosis.

### Results

Twenty patients had the histopathologic diagnosis of ophthalmic onchocerciasis during the study period. Eighteen doctors working in five hospitals submitted the specimens. Fourteen patients were males and six were females, i.e., male: female ratio of 2.3: 1.

The mean age of the affected patients was thirteen years with a range of 3 to 50 years.

Eighty-five percent of them were aged nineteen years or less.

(Table 1) shows the spatial locations of the nodules, the eyelid being the most common site (6 patients).

Location	Number	Percent
Eyelid	6	30
Infraorbital	4	20
Supraorbital	3	15
Eye brow	3	15
Corner of eye	1	5
Conjunctiva	1	5
Orbital margin	1	5
Orbit	1	5
Total	20	100

**Table 1:** Location of nodules.

They were present since birth in two patients; a few months in five patients; 1 – 5 years in five patients; and more than five years in two patients. The duration was not given in four patients while it was simply remarked to be either of long standing or since childhood in one patient each. (Table 2)

Diagnosis	No
Cyst	9
Onchocercoma	6
Fibroma	3
Fibroma/onchocercoma	1
Adenoma	1

Table 2: Clinical misdiagnosis.

## Discussion

The epidemiology and natural history of onchocerciasis as well as its ocular complications in some parts of the world are poorly understood but is best appreciated as regards chorioretinal disease in the work of Newland's group [10]. It is of interest that these authors graded the different lesions.

Standing out because of the potentiality of surgical pathology is the formation of onchocerca nodules. These nodules are commonly located subcutaneously over bony prominences. As Spencer [11], who illustrated the parasite, spelt it out, "The subcutaneous nodules are localized especially over bony prominences including the vertebral spinous processes, crest of the ilium, and back of the skull." Or, as Etya'ale mentioned [5], "iliac crest, greater trochanters, ribs, knee, coccyx and skull" are the favorite sites." We are persuaded that, with regard to the skull, the presence of nodules within and around the orbit itself should be borne in mind. On the whole, the lids as well as the infraorbital and supraorbital regions were commonly affected in our study. As these are common sites for the dermoid cyst [12], it is of interest that the highest misdiagnoses in our series were in terms of cysts.

Interestingly, two of our patients were noted to have had the nodule since birth. This is in keeping with the previously reported transplacental transmission of the microfilaria of *Onchocera volvulus* [13]. Thus, as Spencer [11] described, "The wall of the lesion consists of

dense fibrous tissue resulting probably from irritation caused by the products of dead worms and microfilariae. In other words, nodulation can arise from the transmitted microfilariae within the womb!

## Conclusion

From their individual static bases in sub-Sahara Africa, both pathologist and ophthalmologist can individually so work as to achieve mutual satisfaction. In this context, *Onchocerca* nodules may occur in ophthalmic practice not only in endemic areas but also in exotic places due to worldwide travels. Accordingly, because of worldwide travels, these lesions should be included in the differential diagnoses of ophthalmic nodules even among infants.

## References

1. Steinkuller PG (1987) Primary eye care in rural sub-Saharan Africa. *Int Ophthalmol* 11: 87-93.
2. Sarkies JW (1952) Ocular onchocerciasis. *Br J Ophthalmol* 36: 81-99.
3. McKechnie NM, Braun G, Connor V, Kläger S, Taylor DW, et al. (1993) Immunologic cross-reactivity in the pathogenesis of ocular onchocerciasis. *Invest Ophthalmol Vis Sci* 34: 2888-2902.
4. Umeh RE, Chijioko CP, Okonkwo PO (1996) Eye disease in an onchocerciasis-endemic area of the forest-savanna mosaic region of Nigeria. *Bull World Health Organ* 74: 95-100.
5. Etya'ale D (2001) Vision 2020: update on onchocerciasis. *Community Eye Health* 14: 19-21.
6. Adeoye AO, Ashaye AO, Onakpoya OH (2010) Perception and attitude of people toward onchocerciasis (river blindness) in South Western Nigeria. *Middle East Afr J Ophthalmol* 17: 310-314.
7. Onuigbo WIB, Ezekannagha IR (1990) Biopsy spectrum of clinical misdiagnosis of the onchocerca nodule. *Orient J Med* 2: 166-68.
8. Macartney JC, Rollason TP, Codling BW (1980) Use of a histopathology data pool for epidemiological analysis. *J Clin Pathol* 33: 351-355.
9. Basden GT (1966) *Niger Ibos*. London: Frank Cass & CO. Ltd.
10. Newland HS, White AT, Greene BM, Murphy RP, Taylor HR (1991) Ocular manifestations of onchocerciasis in a rain forest area of west Africa. *Br J Ophthalmol* 75: 163-169.
11. Spencer H (1973) *Tropical pathology*. New York; Springer-Verlag 536.
12. MATHALONE BR (2000) The eye and orbit. In Bailey & Love's Short Practice of Surgery. Edited by RCG Russell, NS Williams, CJK Bulstrode. London: ARNOLD 575.
13. Brinkmann UK, Krämer P, Presthus GT, Sawadogo B (1976) Transmission in utero of microfilariae of *Onchocerca volvulus*. *Bull World Health Organ* 54: 708-709.