ORIGINAL ARTICLE

# The Rarity of Spina Bifida in a Rural Community in a South-Western State of Nigeria

Abiodun I. Okunlola[1], Olabisi T. Adeyemo[2], Augustine A. Adeniyi[2], Olakunle F Babalola[1], Ayobami O. Oni[2], Richard A. Akinyoade[2], Cecilia K. Okunlola[3]

*[1]Department of Surgery, Federal Teaching Hospital, Ido-Ekiti/ Afe Babalola University, Ado-Ekiti, Nigeria;*
*[2]Department of Obsterics and Gynaecology, Federal Teaching Hospital, Ido-Ekiti/ Afe Babalola University, Ado-Ekiti, Nigeria;*
*[3]Department of Medicine, Federal Teaching Hospital, Ido-Ekiti, Nigeria*

## ABSTRACT

**Background: Spina bifida is a form of birth defect involving the vertebral column and it can be classified as occult or overt spina bifida. The most clinically significant and common spina bifida is myelomeningocele. The prevalence of the spina bifida is low in Africa but still varies from one region to another.**

**Aim: To document the prevalence of spina bifida in our community.**

**Materials and Methods: A retrospective review of the labour ward register over thirteen years period from 2007 to 2019 was carried out. The total number of deliveries was evaluated. Spina bifida was restricted to cases of obvious neural placode at delivery whether it is myelomeningocele or myelocele. Cases of cutaneous stigmata were not included.**

**Results: There was a total of 4,473 deliveries over the thirteen years in review. There was no case of spina bifida over this thirteen years period.**

**Conclusion: There is a rarity of Spina bifida in our community which is in support of the available literature. Regular intake of natural food as well as a near natural relatively undisturbed rural environment may account for this rarity. A further well planned population based study is needed to highlight the favourable factors that can benefit region with high prevalence of the spina bifida.** (*Int J Biomed Sci* 2020; 16 (2): 18-20)

**Keywords:** myelomeningocele; folic acid: rural community; natural food

**Corresponding author:** Dr. Abiodun Idowu Okunlola, Department of Surgery, Federal Teaching Hospital, Ido-Ekiti/ Afe Babalola University, Ado-Ekiti, Nigeria. Tel: +2348038112012; E-mail: okunlolab@yahoo.com.
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## INTRODUCTION

Spina bifida is a birth defect involving the vertebral column and it can be classified as occult or overt spina bifida (1). The prevalence of the spina bifida is low in Africa usually less than 1 in 1000 deliveries but still varies from one region to another (2). The most clinically signifi-

cant and common spina bifida is myelomeningocele (3, 4). Most children with this condition usually have associated brain malformation and progressive hydrocephalus (3, 5). The outcome of myelomeningocele depends on the spinal level involved with sacral myelomeningocele having best prognosis and can ambulate with minimal aid (6-8). Bisphincteric incontinence is a common features of myelomeningocele with significant societal stigma (5, 9, 10). The most important factor associated with cognitive function in children with myelomeningocele is the associated hydrocephalus (6).

The most important documented approach to prevention of myelomeningocele is the pre-conception use of folic acid in women of child bearing ages (11). Though, a promising approach with reduction in incidence of myelomeningocele, the goal of elimination of this socially debilitating congenital malformation has not been achieved (12, 13). Effort at folic acid supplementation in women of child bearing age group may not yield uniform output in different society due to level of knowledge, drug availability and religious belief (14, 15). Natural dietary intake and environmental factors may also play significant role in the incidence of myelomeningocele due to the variation in its prevalence from one region to another (4, 13, 15-17). The first author noticed that there was no case of spina bifida in his first twenty months as neurosurgeon in the region, therefore, we had a retrospective review of the delivery in our hospital. The aim of this review is to document the prevalence of the spina bifida in our community.

## MATERIALS AND METHOD

Federal Teaching Hospital, Ido Ekiti is situated and serve rural community in a South-Western State of Nigeria. The Community primarily comprises of farmers and feed mainly on yam, cassava, fruits and vegetables as their staple foods. Our Institution is a tertiary medical facility with services of obstetricians and gynaecologists, and paediatricians. All deliveries were supervised by the obstetricians and the neonates were examined before discharge. The outcomes of all pregnancies were recorded in the labour ward register at delivery. The institutional ethical approval was obtained to review the incidence of the spina bifida in our hospital.

A retrospective review of the labour ward register over thirteen years period from 2007 to 2019 was carried out. The total number of deliveries was evaluated and the prevalence of the central nervous system anomalies were documented.

## RESULTS

There was a total of 4,473 deliveries over the years in review. Spina bifida was restricted to cases of obvious neural placode at delivery whether it is myelomeningocele, meningocele or myelocele for the purpose of this study. There was no recorded case of a child with spina bifida or encephalocele over this thirteen years period in the labour ward register but there was a case of congenital hydrocephalus and six cases of anencephaly. There was no record of the folic acid use or nutritional details.

## DISCUSSION

Spina bifida is associated with social and psychological stigmata even with extensive and multidisciplinary care (18). The goal is total elimination of this preventable congenital malformation to relief societal consequences and individual patient and family socio-economic challenges associated with care (19). Nutritional deficiency has been outlined in the literature as an important factor with emphasis on inadequate intake of folic acid as the principal player (20). The global effort to eliminate this clinically and socially debilitating congenital malformation has not yielded the desired result in spite of the global campaigns for widespread pre-conception and antenatal folic acid use (14). This may be a challenge because most women are not aware of their pregnancy status during the period of organogenesis and they usually register for antenatal care after this important phase of pregnancy most especially in the third world countries (1).

Routine use of folic acid by all women of child bearing age groups is a better approach but the major challenges are the availability of the drug on the side of the concerned agencies and compliance on the part of the women (14). Another important but less emphasized point is the role of natural nutrition in the prevention of spina bifida which may definitely go beyond folic acid alone. This should buttress the role of healthy nutrition in addition to folic acid supplementation in women of child bearing age not only in pregnancy but as a routine use to cater for even the unplanned pregnancies (16).

The review of our labour ward register showed no single case of the spina bifida cystica over a period of thirteen years in a community situated in rain forest with the staple food being yam, cassava, vegetables and fruits. This findings may be a combination of both nutritional and environmental factors. Our finding is contrary to the recent

reports from other regions of the country where the prevalence is similar to the available literature (4, 21-23). Interaction with women in this community does not show any use of preconception folic acid supplement and they usually register for antenatal care after the first trimester, the usual trends in the third world countries, when the routine folic acid supplement is among the antenatal care package (14). There is need for a well-planned prospective study to evaluate the maternal characteristics including the use of folic acid. The most probable explanation for the low incidence is a diet from natural food products in a natural environment in this community and suggest significant contribution to the rarity of spina bifida.

The pre-conception use of folic acid has not eliminated spina bifida in the developed countries, though there is significant reduction in the incidence over the years (12). The goal is to encourage the use of all-encompassing diet that provide adequate folic acid and other nutritional components that may be essential in the effort to eliminate occurrence of spina bifida (16, 17, 20).

## LIMITATION

This is a retrospective single institution hospital-based study with small size. We do not have data on the preconceptional use of folic acid and nutritional details.

## CONCLUSION

There is a rarity of Spina bifida in our community which is in support of the available literature. Regular intake of natural food as well as a near natural relatively undisturbed rural environment may account for this rarity. A further well planned population based study is needed to highlight the favourable factors that can benefit region with high prevalence of the spina bifida.

## CONFLICT OF INTEREST

The authors declare that no conflicting interests exist.

## ETHICAL STATEMENTS

The institutional ethical approval was obtained.

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