

# Injection-Induced Sciatic Nerve Injuries Among Children Seen At A Nigerian Physiotherapy Unit

O Adetunji, E Olusola, A Joseph, O Dare, O Ademola, O Segun

## Citation

O Adetunji, E Olusola, A Joseph, O Dare, O Ademola, O Segun. *Injection-Induced Sciatic Nerve Injuries Among Children Seen At A Nigerian Physiotherapy Unit*. The Internet Journal of Third World Medicine. 2005 Volume 3 Number 2.

## Abstract

Background: Sciatic nerve injuries are the most common acquired post delivery injuries, managed among children, at the physiotherapy unit of the specialist State Hospital, Osogbo. There is paucity of information on this injury in Nigeria and to our knowledge this is the only study conducted among physiotherapy patients.

Aim: To determine the presentation, pattern and the circumstances surrounding post delivery iatrogenic sciatic nerve injuries and suggest preventive measures.

Materials and Methods: Case records of all the new patients seen between the 1st of January 2004 and 31st of December 2005 were analysed.

Results: A total of 112 children were managed at the physiotherapy unit during the 2 years reviewed. Forty [35.7%] of them - 25 boys and 15 girls had injection induced sciatic nerve damage. Thirtyone (77.5%) of the children affected were aged 5 years and below. Malaria was the condition most commonly treated with the injected drugs most of which were administered at private hospitals by medical attendants thought to be nurses. Default from the physiotherapy follow up before completion of rehabilitation was the rule.

Conclusion: There is a need to reduce the frequency of the choice of injections in the administration of drugs to children, because of the dangers associated and the morbidity resulting from it.

## INTRODUCTION

Sciatic nerve injury is a well-known complication of intra-muscular gluteus muscle injections. They may result from the caustic effect of the drug injected, or from direct trauma to the sciatic nerve. <sup>1</sup> Affected patients usually present with foot drop as a result of paralysis of the muscles supplied by the nerve and end up with varying degrees of motor disability depending on the timing, quality and duration of remedial measures instituted. Administration of drugs into the buttock muscles has also been associated with other complications such as anaphylaxis, injection abscesses and other infections. <sup>2,3</sup> Osogbo State Hospital, where this study was conducted is a referral centre for the 7 general hospitals in Osun state, situated in Western Nigeria and serving an estimated population of 3 million. It has a well-equipped physiotherapy unit with 5 cubicles each having a bed, electrical stimulators, infrared lamps other equipments and personnel such as physiotherapists and orthotists.

## PATIENTS AND METHODS

Information was obtained from the case files of all clinically confirmed cases of post gluteal injection, foot drop, seen between 1<sup>st</sup> of January 2004 and 31<sup>st</sup> of December 2005, in the physiotherapy unit of the State Specialist Hospital, Osogbo. The data obtained from the records included: age, sex, interval between injury and presentation, immunization status, indication for injection, personnel who administered the injection, clinical presentation, management details, outcome at discharge, occupation of parents and other relevant details.

## RESULTS

### AGE AND SEX DISTRIBUTION

A total of 398 patients were managed at the physiotherapy clinic in the 2-year period reviewed. The 398 patients were made up of 112(28.1%) paediatric age group aged below 14 years and 286(71.9%) older children and adults. Of the total

112, children 40[35.7%] had injection-induced palsies. The 40 consisted of 25 boys and 15 girls giving (M:F ratio 1.7:1). Thirtyone (77.5%) of the 40 were aged between 8 months and 5 years and 9 [22.5%] from over 5 to 14 years. The palsies were unilateral in all cases and were left sided in 21(52.5%) and right sided in 19 (47.5%)

## INDICATIONS FOR THE INJECTIONS

Table 1 shows the reasons for the administration of the gluteal intramuscular injections. By far, the most common condition for which intramuscular injections of drugs were given was malaria - 25(62.5%) patients. The names of the drugs injected were not recorded in the files.

## PRESENTING TIME AND FEATURES; FOLLOW UP PERIOD

The duration of time from the injection, within which the patients presented at the physiotherapy clinic are shown in Table 2. Half of them presented within a month and 12[30.0%] over 1 month to 5 months interval. This information was not provided in 8 patients. The patients older than 1 year all presented with inability to walk properly, while infants presented with impairment or delay in crawling. The total number of post discharge visits made by each patient to the physiotherapy clinic ranged from 1 to 46 visits spanning over a period of 6 days to 6 months. All the patients defaulted from clinic before satisfactory recovery or discharge.

## ANTI- POLIOMYELITIS IMMUNIZATION; WHO GAVE THE INJECTIONS AND WHERE?

Of the 40 children 21 (52.5%) received polio immunisation, while 4 (10.0%) did not and the information was not provided in 15(37.5%) patients.

Half of the patients (50.0%) had the injections administered by nurses at private hospitals, ten patients (25.0%) at tertiary hospitals and 6(15%) at comprehensive health centres and dispensaries. The mothers who were professional nurses administered the injections at home in 4 (10.0%)

## OCCUPATION OF PARENTS

The parents were grouped as professionals and non-professionals. No father belonged to the professional cadre while 4 mothers, who were professionals, were nurses by occupation. All the fathers were artisans such as painters, tailors, mechanics and bricklayers, while most of the non-professional mothers were petty traders.

**Figure 1**

Table 1: Indications for giving injections and the number and percentage of children injured.

Indication for injection	Number affected	Percentage of total
40		
Malaria	25	62.5%
Convulsions	2	5.0%
Immunization	2	5.0%
Typhoid	2	5.0%
Diarrhoeal disease	1	2.5%
Measles	1	2.5%
Unspecified illness	7	17.5%
Total	40	100.0%

**Figure 2**

Table 2: Interval between injury and presentation

Interval between injection and presentation	Number of patients'	Percentage of 40
1 week or less	8	20.0%
>1 week – 1 month	12	30.0%
>1 month to 2 months	3	7.5%
>2 months to 5 month	5	12.5%
>5 months	4	10.0%
Unspecified	8	20.0%
Total	40	100.0%

## DISCUSSION

The number of children with injection induced sciatic nerve injuries in this study is higher than the 27 cases collected over a 12-year period by Fatunde et al<sub>4</sub> in 2001. Gluteal intramuscular administration of drugs is presently a common practice in Nigeria especially among the paediatric age groups. Some health workers are known to have strong preferences for injections and infusions even when oral and other alternative routes are equally good and safer. Such health workers indulge in these practices to convince the relations of the patients of the quality of their care and consequently, the justification for the high bills they would pay. On the other hand parents of ill children often consult health workers, demanding that they be given injections, which they believe, would work better and faster than drugs given orally. This belief is erroneous and can be adduced to ignorance on the part of the parents. Most of the parents affected in this study were non-professionals, who probably had little or no formal education. Professionals in general have a better formal education and are less likely to patronize sub standard health facilities or quacks. In this study most of the injuries were inflicted at private hospitals where, staffs with inadequate training can be labelled as nurses and are allowed to give intramuscular injections. Paradoxically, four professional nurse mothers personally administered injections presumably, without consultation in their homes. They should feel the guilt of ignoring ethical guidelines.

Factors predisposing to injection induced sciatic nerve injury, like the difficulty of restraining a fretful child and poor techniques such as angulating the needle while injecting can lead to direct trauma to the sciatic nerve, or bring the sciatic nerve in close contact with the extravasating drug, which may cause damage. Injectable drugs that were given commonly in a previous similar study include Chloroquine, Novalgin, Paraldehyde and Procaine penicillin.<sup>4</sup> These drugs are still frequently used at our health service units even when safer alternative route preparations exist in oral, intra-venous and suppository forms.

The predominance of the 8 months to the 5 years age group in those affected, can be explained by the fact that malaria which is the commonest condition for which the injections were administered, affects this age group most in consonance with the development of immunity to the disease. It is understandable, that the buttocks have come to be regarded by many health workers as the choice sites for intramuscular injections, because there is almost no other conceivable anatomical site with equally significant muscle bulk to deposit drugs. Enough care is however, not being taken to avoid injuring the sciatic nerve by sticking to the upper outer quadrant.<sup>5</sup>

Diagnosis of post sciatic nerve injury foot drop is usually straightforward. Most patients presented with inability to walk or crawl well or paralysis of the limb, after intramuscular injections to the affected limb. Most of them presented late. This may have compromised full recovery since gluteal fibrosis, which is preventable, might have set in.<sup>6,7</sup> Poliomyelitis is however an important differential in ill children who develop flaccid paralysis after injections especially if they are not immunized against poliomyelitis. Such paralysis may infact be cases of provocation polio.<sup>8</sup> Proper investigations of paralysed children is very important because of the public health importance of poliomyelitis. In countries where poliomyelitis infections still exist, un-immunized children should not receive injections, especially during epidemics.

It is noteworthy that all patients studied defaulted from follow up before they were discharged from the clinic. This default rate calls for a better-funded and organised physiotherapy unit with facilities for mobile community

services to enable defaulters to be traced and treated at home. Financial constraints may be responsible for the late presentation and the default, judging from the fact that most of the parents were artisans.

To reduce the high frequency of this handicapping condition, injections should be prescribed only when mandatory and administration should be by well-qualified and competent personnel.<sup>5</sup> There is a need to give appropriate education to health service providers, parents and other child care givers on the dangers of parenteral administration of drugs, with a view to discourage the existing dangerous preference of health workers and parents for injections.

It is worrying that all the injections were said to be administered by nurses. As alluded to above it is possible that some of the personnel described, as nurses were auxiliaries and other health attendants. Whatever the case the situation points to the need to organise compulsory update and refresher courses for all health service staff. At the same time all forms of quackery should be identified and sanctioned.

### **CORRESPONDENCE TO**

Dr. O.A Oyedeji. Department of Paediatrics, Ladoke Akintola University Teaching Hospital, Osogbo, Nigeria. E-mail: soltomoyedeji@yahoo.com Telephone: +234 (0) 8056715508

### **References**

1. Mayer M, Romain O Sciatic nerve paralysis after a buttock intramuscular injection in children: an ongoing risk factor. *Arch Pediatr* 2001;8: 321-3
2. Musa OI Injection safety practices among health worker in static immunisation centres in an urban community of Nigeria. *Niger Postgrad Med J* 2005;12:162-7
3. Stugatskaia GS, Chastikova AV Anaphylactic shock following a single intramuscular injection of penicillin. *Antibiotiki* 1977;22:365-7.
4. Fatunde OJ, Familusi JB Injection-induced sciatic nerve injury in Nigerian children. *Cent Afr J Med* 2001; 47: 35-8
5. Bigos SJ, Coleman SS. Foot deformities secondary to gluteal injection in infancy. *J pediatr Orthop*. 1984;4 : 560-3
6. Huang Y, Yan Q, Lei W. Gluteal sciatic nerve injury and its treatment. *Zhongguo Xiu Fu Chong Jian Wai Ke Zhi*. 2000;14 :83-6.
7. Napiontek M, Ruszkowski. Paralytic drop foot and gluteal fibrosis after intramuscular injections. *J Bone Joint Br* 1993;75: 83-5
8. Nwuga VC, Odunwo T. Some clinical characteristics of children with paralytic poliomyelitis referred for physiotherapy. *J Trop Med Hyg* 1978; 81: 84-7

**Author Information**

**Oyedemi Olusola Adetunji, MBChB FWACP**

Lecturer, Department of Paediatrics, Ladoke Akintola University of Technology Teaching Hospital (LAUTECH)

**Elemile Peter Olusola, MBBS DCTH FWACP**

Lecturer, Department of Paediatrics, Ladoke Akintola University of Technology Teaching Hospital (LAUTECH)

**Adebami Olusegun Joseph, MBChB FWACP**

Lecturer, Department of Paediatrics, Ladoke Akintola University of Technology Teaching Hospital (LAUTECH)

**Ogunlusi Jhonson Dare, MBBS FMCS**

Consultant orthopaedic surgeon, Department of surgery, Victoria Hospital

**Oyedemi Gabriel Ademola, MBBS DCTH FWACP FRCP**

Professor of Paediatrics, Department of Paediatrics, Ladoke Akintola University of Technology Teaching Hospital (LAUTECH)

**Oluwafemi Segun, B.Sc physiotherapy**

Physiotherapist 1, Department of Physiotherapy, State Hospital