

# UNUSUAL CAUSE OF MANDIBULAR FRACTURE IN A NIGERIAN GIRL

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## ABSTRACT

*Maxillofacial fractures in the pediatric age group are relatively uncommon. Falls, sport-related injuries and road traffic crashes (RTC) constitute the most frequent causes of facial fractures in children. Social, cultural and environment factors vary from one country to another and these factors have been reported to influence the incidence and etiology of mandibular trauma. An unusual cause of mandibular fracture in a Nigerian girl is presented.*

## Introduction

Maxillofacial fractures in the pediatric age group are relatively uncommon with less than 15% of all facial fractures reported in the pediatric population.<sup>1-6</sup> The incidence increases as children begin school and peaks during puberty and adolescence, attributed to increased unsupervised physical activity and sport.<sup>5-8</sup> Boys are commonly affected than girls in all age groups worldwide.<sup>9</sup> Falls, sport-related injuries and road traffic crashes (RTC) constitute the most frequent causes of facial fractures in children.<sup>7-12</sup>

In contrast to adults, interpersonal violence is a rare cause of facial fractures in children. These injuries occur more commonly in adolescents.<sup>9</sup> Facial fractures are seen in 2.3% of all victims of child abuse. Social, cultural and environmental factors vary from one country to another and these factors have been reported to influence the incidence and etiology of mandibular trauma.<sup>13</sup> An unusual cause of mandibular fracture in a Nigerian girl is reported.

## CASE REPORT

A previously fit and well 9-year old girl was admitted into the maxillofacial surgery ward of the University of Maiduguri Teaching Hospital following a history of fall on a concrete floor. She was reported to have

gone to a local commercial grain grinding centre to grind maize for her parents. At the grain grinding centre, the traditional head and neck attire she was wearing was mistakenly trapped by the belt of the local grinding machine as a result of which she was suddenly lifted up and fell on a concrete floor.

On examination, the girl was found conscious, had moderate, diffuse submandibular swelling bilaterally and slight bleeding from the mouth. A circumferential soft tissue abrasion was noticed on the neck and examination of the oral cavity revealed a right sublingual hematoma and step deformity of the mandible in the right lower premolar teeth region.

A plain skull radiograph was taken, which demonstrated fractures at the body of mandible on the right and at the angle of the mandible on the left (Fig 1).

She was taken to the operating room, where the bleeding from the mouth was arrested with pressure pack and a maxillomandibular fixation done with the use of upper and lower arch bars (erlich pattern) and ligature wires. The bilateral submandibular swelling resolved within the first postoperative week and the maxillomandibular fixation was removed after three weeks of placement. There were no postoperative complications after six months follow-up.

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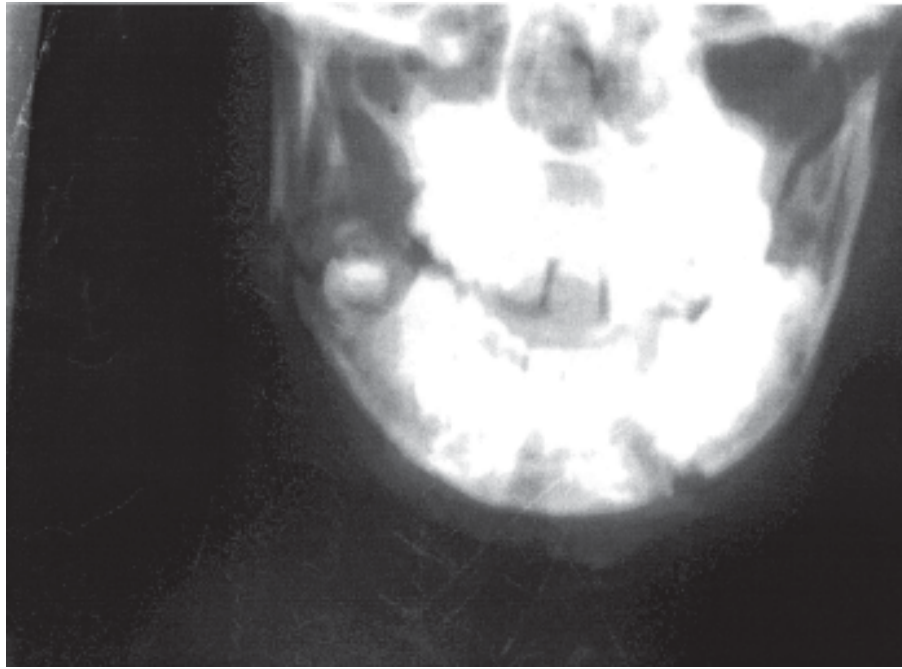


Fig 1

## DISCUSSION

Several reports on pediatric facial trauma have revealed a lower incidence of mandibular fractures in children, compared with adults, varying from 1% to 15% depending on the age studied.<sup>14</sup> Falls, sports-related injuries and RTA constitute the most frequently reported causes of facial fractures in children.<sup>6-10</sup> The cause of fall responsible for the mandibular fractures in the 9-year old girl in the present report is not common. In most studies, fall as a cause of facial fractures in pediatric population has been mostly from falling on the floor when playing indoors or outdoors, falling from beds, chairs and stairs, or falling from a ladder or a wall.<sup>15-17</sup> The incidence and etiology of facial trauma are known to be influenced by social, cultural and environmental factors and affected by age-related activities. Similar to findings in most countries in Africa, parents of children in the school age group in Nigeria routinely involved their children, especially girl-child in domestic activities as part of training without due consideration to possible health hazards involved in such activities.<sup>17</sup> In India 50% of accident involving adult and children are traffic-related. This is due to wide use of motorcycle in India.<sup>15</sup> Physicians in developing countries must therefore be actively involved in developing strategies to decrease the occurrence of falls by counseling parents of children on the

hazards associated with unsupervised domestic activities. Legislative measures to enforce safety as well as the development of protective devices, could lead to a long-term benefits in reducing such injuries.<sup>15</sup>

Several studies have shown that the site and pattern of a facial fracture depend on the inter-relationship between etiology and force of the injury and the unique anatomic features of the child's stage of development.<sup>18</sup> The sudden tramping of the head/neck attire of the patient in the present report by the grinding machine possibly dragged the cloth forcefully round the child neck causing the circumferential abrasion on the neck. The impact of falling on a concrete floor explained the mandibular fracture in this patient. Infants (below age 2) are more likely to sustain injuries of the frontal region during falls. Older children however, are more prone to injuries of the lower jaw.<sup>19</sup> With increasing age and facial growth, in a downward and forward direction, the midface and mandible becomes prominent and the incidence of mandibular fractures increases while cranial injuries decrease.<sup>20</sup> Similar to most reports of facial fractures in this age group,<sup>20</sup> the fractures in the patient in the present report were not displaced. Increased stability of fractures in children in this pediatric age group has been attributed to the presence of tooth buds within the jaws and lack of sinus pneumatization in the maxilla.<sup>2</sup>

In general, pediatric maxillofacial fractures are managed according to the same basic principles applied in adult fractures. CT scans greatly increase diagnostic accuracy and have become the standard of care for imaging pediatric facial trauma victims.<sup>19</sup> Plain radiograph was used in the present report because of the inability of the patient to afford the cost of CT.

There seems to be no consensus yet on the indications for conservative management of maxillofacial fractures in pediatric patients worldwide.<sup>15</sup> Wymann et al<sup>15</sup> attributed this to the varying experience of surgeons with different treatment techniques and also to differences in social and referral habits. Close education and maxillomandibular fixation (for a period of 3 weeks) with arch bars was used for the treatment of the fractures in this report. Children have been reported to have greater osteogenic potential and faster healing than adults; therefore immobilization times are usually shorter (2-3 weeks versus 4-6 weeks in adults).<sup>19</sup>

## CONCLUSION

Maxillofacial trauma is rare in children, the etiology may however, be influenced by social, cultural and environmental factors in a locality. Physicians in developing countries must play a significant role in developing strategies to decrease the occurrence of falls in the pediatric age group by counseling parents on the hazards associated with unsupervised domestic activities that could result in facial injuries in children. Significant success was achieved with an inexpensive approach adopted in the management of this patient.

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