

Impact of Socio-Cultural Practice of Infant/Young Child Gum Lancing during Teething

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Background: Fever and diarrhea are among the common morbidities that do occur during infancy and are sometimes wrongly associated with teething by the community. Some societies practice gum lancing, ordinarily referred to as gum cutting, as a remedy for the “teething diarrhoea”. These myths have a potential of giving false security with the belief that these symptoms are part of the teething process, and so medical attention may not be sought when necessary. There are few studies focusing on the outcome of such practices despite their known potential dangers. **Objective:** To describe various methods of gum lancing and clinical presentation, management and outcome of gum lancing among the Akamba people as seen in Kangundo District Hospital. **Method:** One hundred and fifteen infants/children who were brought to the hospital with a positive history of gum lancing. **Results:** The common presenting complaints were persistent diarrhoea (74.0%), fever (44.3%), difficulty in breathing (27.8%) and refusal to feed (20.9%). 58.3% cases warranted admission and these included severe dehydration and shock (47.8%), severe and very severe pneumonia (40.3%), meningitis (26.9%) and generalized sepsis (17.9%). There were a total of 7 mortalities (6.1%), 3 on arrival and 4 within the pediatric ward. Invasive gum lancing procedures and delayed seeking of medical attention were associated with severe disease and poorer outcomes. **Conclusion:** The impact of gum lancing is of both a public health and economic significance. It is associated with unfavorable outcome if prompt measures are not put in place. There is need to conduct community sensitization and educate caregivers on the truths of teething and dangers of gum lancing as well as seeking health services for fever and diarrhoea. Use of broad-spectrum antibiotics and adequate rehydration are necessary in management of the victims.

Keywords: Gum lancing, teething, children

INTRODUCTION

Teething is a normal process which generally begins at six months.¹ The appearance of an infant's first tooth is regarded by most parents as one of a series of significant developmental landmarks, and an 'old wives' tale' regards its precocious eruption as a sign of great intelligence.² Anecdotally however, the period associated with the eruption of the primary teeth in infants can be difficult and distressing for both the child and their respective parents. A variety of symptoms such as sensitive and painful gums, mouth ulceration, drooling, feeding difficulties, lack of sleep and

crying may accompany teething all of which result in a distressed child and anxious parent.^{1,2,3,4}

There are however many myths related to teething in infants and children. These myths have given false security with the belief that these symptoms are part of the teething process.⁵ The tendency in the past to attribute some serious disease to teething was so prevalent that at some point teething was a registered cause of death in 4.8% of all infants who died in London under the age of 1 year and 7.3% of those between the ages of 1 to 3 years according to the Registrar General's report.⁶ Hippocrates himself regarded primary tooth eruption as a cause of severe illness, including fever, diarrhoea and convulsions. In 1975 however, the British Medical Journal wrote that “There can be no excuse for ascribing fever, fits, diarrhoea, bronchitis, or rashes to teething”. Fever^{3,7} and diarrhoea^{5,8} are the most common symptoms majority of communities have for so long associated with teething. Although the intervening quarter century has seen the growth of evidence to this effect, it has also illustrated how great may be the distance between research evidence and practice and how slowly that gap may close.

Many individuals and societies still hold to the old myths related to teething even in this century.² According to the current medical opinion, teething diarrhea is one of such myths, yet cross-cultural data document a worldwide distribution of popular belief in the association of frequent, loose stools with tooth eruption.^{4,9} The Kamba people, a native Kenyan community, predominantly occupying the Eastern Province of the country, are one such community

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Table 1: Age and Gender Distribution

Age Category	Males	Females	Total
4-6 Months	4	3	7
7-9 Months	27	17	44
10-12 Months	18	13	31
13-15 Months	12	9	21
16-18 Months	5	4	9
19-21 Months	2	0	2
>21 Months	1	0	1
Totals	69	46	115

that believes in teething diarrhea. For this reason, most infants/children who present with diarrhea during the period of teething in this community usually undergo a ritual gum lancing, which ranges from mild rubbing of the infant/child gum with some ash to actual cutting with sharps. It is believed that by doing this the diarrhea disappears. It has been observed, however, that most of these infants/children would later be rushed to hospital due to sepsis related conditions. This observation prompted us to conduct a study on the impact and magnitude of gum mutilation in Kangundo District Hospital with the aim of mitigating the practice. We also noted that very few studies have focused on the impact of gum lancing.

MATERIALS AND METHOD

One hundred and fifteen infants/children brought to the Kangundo District Hospital (KDH) in the period of 7 months with a positive history of gum lancing were included in the study after consent from the guardian. Kangundo District Hospital is a level IV government hospital, in Machakos County, located in a geographical region predominantly occupied by the Kamba people. Details pertaining to age of the subject, sex, type of lancing, object used, the person who performed the procedure and duration taken since the time of lancing to hospital visit were noted. The presenting complaints were also documented as well as findings on physical examination. The pulse rate, respiratory rate, AVPU scale, dehydration status and temperature were noted. Those who warranted emergency treatment such as those in shock, severe respiratory distress and those in coma were provided with appropriate management according to the Kenyan Ministry of Health Basic Pediatric Protocol. All subjects

were given antibiotics for treatment. For those who were admitted, the duration of hospital stay and outcome were noted.

RESULTS

One hundred and fifteen infants/children, aged between 5 months and 19 months were included in the study. Out of these, 67 (58.3%) were admitted and given intravenous antibiotics, 45 (39.1%) were managed as outpatient on oral antibiotics, and 3 (2.6%) were certified dead on arrival to the hospital.

Age and gender distribution

Majority of the infants/children who underwent the procedure of gum lancing were between the age of 7 to 9 months old (44 cases; 38.3%), and was seen more in boys than girls (Table 1 and Figures 1 & 2).

Presenting Complaints

Majority of the patient were brought to hospital because the “teething diarrhea” did not stop (84 cases; 74.0%), fever (51 cases; 44.3%), difficulty in breathing (32 cases; 27.8%), refusal to feed (24 cases; 20.9%) and weakly (17 cases; 14.8%). Other complaints were vomiting (9 cases) and convulsions (4 cases) [Figure 3].

Time interval before attending hospital

Most patients (59 cases; 51.3%) were brought to hospital after 3 to 5 days of undergoing procedure of gum lancing. 17 (14.8%) of the cases were brought after 0-2 days, 25 (21.7%) after 6 to 7 days and the rest (14 cases; 12.2%) [Figure 4].

Type of Gum lancing/mutilation

Description was not well given on the type of lancing done, but it ranged from mild rubbing of the gums with ash to actual cutting. The cutting was done under septic techniques using nails, old blades, knives or broken bottles, commonly by the grandmother to the infant/child, with or without consent from the parents. The lancing is done to both maxillary and mandibular gingivae. There was one incident where it was reported that a chisel-like object was used; in this case the resultant severe anaemia and sepsis was so severe that the child passed on within 24 hours of admission. Figure 5 is an image of an infant who underwent gum lancing and presented five days later with suppurative gum.

Major Signs at presentation

Dehydration (91 cases; 79.1%), fever (75 cases; 65.2%), tachycardia (63 cases; 54.8%), respiratory distress (39 cases; 33.9%), bilateral

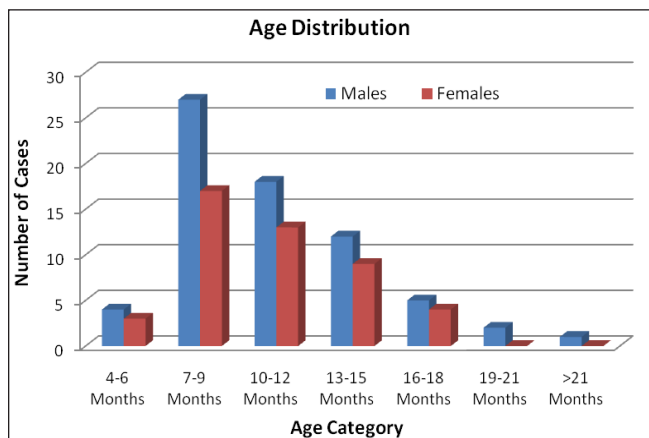


Figure 1. Age and Gender Distribution

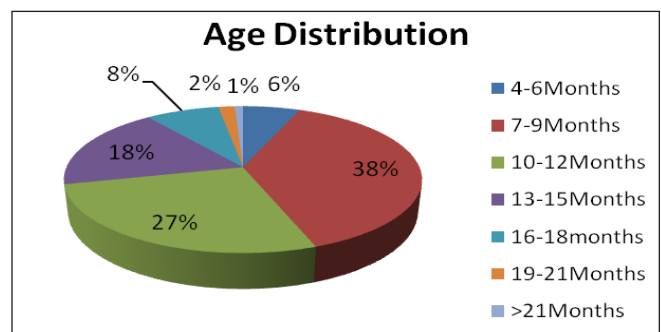


Figure 2. Proportions of various age categories

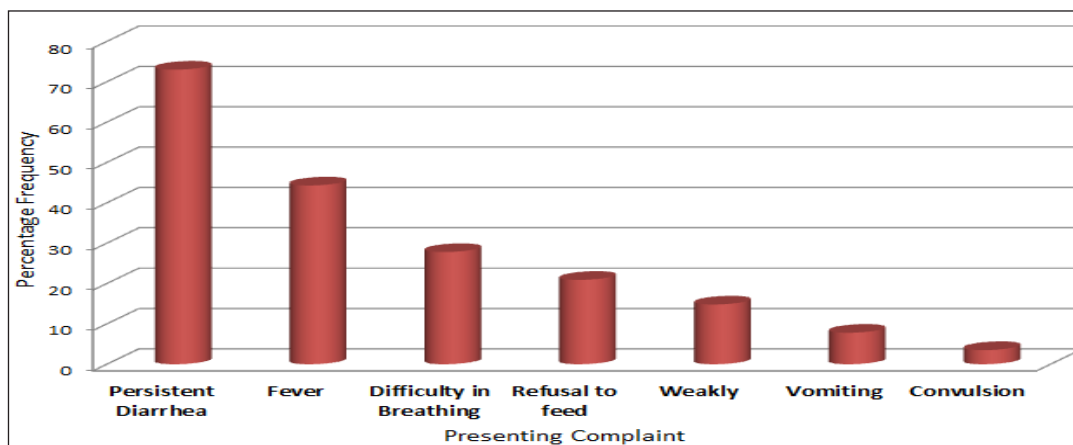


Figure 3. Percentage incidence of major presenting complaints

crepitations (33 cases; 28.7%) and neck stiffness (24 cases; 20.9%) were the major signs noted at presentation in varied combinations. In addition, some had septic gums (19 cases; 16.5%), impaired level of consciousness (17 cases; 14.8%), pallor (14 cases; 12.1%) and shock (9 cases; 7.8%). Three (2.5%) infants were certified dead on arrival to the hospital.

Out of the 91 cases with dehydration, 9 (7.8%) were in shock defined by cold extremity, weak/absent pulse, capillary refill time >3 seconds or AVPU scale < A. Twenty three (20%) patients had severe dehydration evidenced by inability to drink or AVPU scale <A plus sunken eyes and return of skin pinch ≥ 2 seconds. The rest (59 cases; 51.3%) were classified as simple dehydration.

Fever was defined as axillary body temperature >37.3oC. Out of the 75 cases that had fever, forty one (35.7%) had temperature between 37.4 and 37.9 degrees Celsius; 22 (19.1%) had temperature between 38.0 and 38.9 degrees Celsius; and 10 (8.7%) had temperature ≥ 39.0 degrees Celsius. High fevers were associated with degree of gum mutilation and the duration of stay before coming to hospital.

Emergency Care Provided

Infants who presented with shock and severe dehydration were started on immediate fluid resuscitation according to the Kenyan Ministry of Health Basic Pediatric Protocol. Patients with severe respiratory distress and those whom AUPU scale was less than “A” were initiated on Oxygen therapy via nasal catheters. Those with severe anaemia were appropriately transfused whenever there was blood.

Admitting Diagnoses

Sixty Seven (58.3%) infants/children were admitted and managed with intravenous antibiotics. The admitting diagnoses included gastroenteritis with severe dehydration or shock (32 cases; 47.8%), severe or very severe pneumonia (27 cases; 40.3%), meningitis (18 cases; 26.9%), generalized sepsis (12 cases; 17.9%) and severe anaemia (5 cases; 7.5%). Indications for admission included high fever, gum sepsis, inability to feed, respiratory distress, severe pallor, neck stiffness, convulsions, severe dehydration, shock and altered level of consciousness. Some had more than one diagnosis

at admission. Invasive gum mutilation and longer duration of stay before coming to the hospital were associated with more severe signs and symptoms.

Inpatient Management

All patients who were admitted received parenteral antibiotics and oral zinc sulphate. A combination of benzylpenicillin and chloramphenicol at meningitic doses was used for all patients, but metronidazole was added for those who had gum sepsis (19 cases; 28.3%). Those who did not show improvement within 48 hours of admission with this therapy (7 cases; 10.4%), or those whose admitting signs and symptoms seemed to worsen at any time after admission were switched to ceftriaxone at meningitic doses (5 cases; 7.4%).

Hospital Stay and Outcome

The average hospital stay was 9 days, with most of them being weaned off IV antibiotics on between day 7 and 10 (31 cases; 46.3%). Sixteen (23.9%) were discharged before 7 days of hospital stay, and these were mainly dehydration related without other focus of infection. Twelve patients (17.9%) were discharged between day 11 and 14, while four (6.0%) stayed for 2-3 weeks in the hospital. There were a total of four (6.0%) mortalities within the wards. Two were from the generalized sepsis, one due to meningitis and the other from very severe pneumonia.

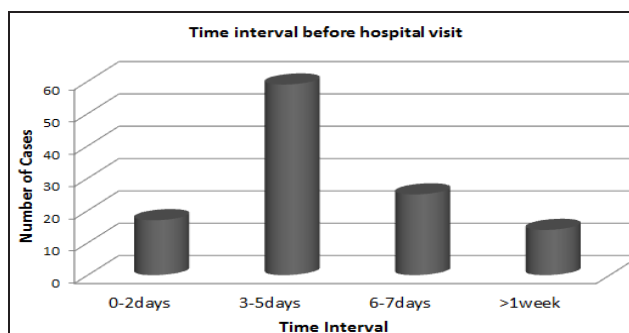


Figure 4. Time interval before attending hospital



Figure 5. An infant with suppurative gum 5 days post lancing

DISCUSSION

The relationship between the eruption of the deciduous teeth and the general health of infants has been documented for over many years. A variety of physical disturbances (anything from minor upsets to potentially fatal illnesses) have historically been attributed to teething.^{2,6,9,10,11} The current study shows that among the Kamba community, diarrhea in infancy is strongly associated with teething. They further believe that when the gums of such infants or children are rubbed or cut the diarrhoea would stop. For this reason lancing is usually done to the gums of these infants or children, usually by the grandmothers with or without the consent of the mother as seen from the current study. This practice has also been reported in other set-ups.¹² John Arbuthnot (1667-1735), a physician to Queen Anne, claimed that “above a tenth part of infants die in teething by symptoms proceeding from the irritation of the tender parts of the jaws.” He, along with many others, recommended lancing the gums in difficult cases.¹³

These recommendations have not only been taken with seriousness but also wrongly implemented. Among the Kamba people in this region, the lancing ranges from mere rubbing using a coarse material to actual gum cutting. In most cases the objects used for rubbing or cutting are unclean, including ashes, nails, old blades, knives and broken bottles without anesthesia! This, in addition to the trauma caused and associated bleeding, may be an important cause of sepsis. The wounds left on the gums may also make the infant/child unwilling to feed even in the absence of an infection. The current study observed that invasive gum mutilation was associated with significant blood loss, more feeding difficulties, severe septic complications and worse outcome compared to mere gum rubbing with ash. The cuts made on the gum act as entry points for various infections in the body leading to sepsis.

It is now widely accepted that there may be localized symptoms of teething, and that these vary between individuals.² They include sensitive and painful gums, mouth ulceration, drooling and feeding difficulties.^{1,3,4} Parental false beliefs associated with teething is however not evidence based and may interfere with the prompt diagnosis and management of a range of serious illnesses.¹⁰ These myths give false security with the belief that the symptoms are part

of the teething process.⁵ This causes delayed interventions, and increased morbidity and mortality as noted in the current report and documented by other authors.¹¹ Therefore, when systemic upsets are present during teething the infant should be promptly referred to a physician for an accurate diagnosis and appropriate treatment,² because some of these symptoms may connote underlying serious medical condition in a child.^{8,10,11} The association of diarrhoea with teething makes mothers or caretakers not seek medical attention for the infant promptly as such. This, as noted in the current study, may lead to severe dehydration or even shock, with poorer outcomes.

Most of the gum lancing practices were carried out by the grandmother with or without mother’s consent. This shows that this is a practice that has been there for long, and the old people are still clinging to the associated myths. It is important therefore that the community be educated on the need to seek prompt medical attentions in a symptomatic child such as fever and diarrhoea.^{11,14} In addition, medical professionals need to be educated about teething to provide reasonable explanations to concerned caregivers.^{5,10}

The most common conditions at presentation to the hospital were dehydration, pneumonia, meningitis and gum or generalized sepsis. It is possible that the diarrhoea that was initially perceived to be related to teething persisted up to the time medical attention was sought. Unfortunately some infants were brought to the hospital very late, and this partially contributed the high mortality noted. One particular case had severe anaemia following hemorrhage after an invasive gum cutting using chisel, and was lost within 24 hours of hospital admission due to severe sepsis and anaemia. The associated sepsis following gum cutting also led to diseases such as pneumonia and meningitis. These were managed with intravenous antibiotics (benzylpenicillin and chloramphenicol). Where the gums were septic metronidazole was added to cover for the anaerobic organisms. The choice of the antibiotics was made on empirical basis, putting into consideration cost, availability and affordability in our setting. Generally the patients attended to in Kangundo District Hospital are from middle and lower socioeconomic class. Oziegbe et al actually noted that the myths regarding teething were more associated with a lower socioeconomic status.⁸

CONCLUSION

Gum lancing due to teething diarrhoea myth predisposes the infant/young child to unnecessary trauma, feeding difficulty and infections such as pneumonia and meningitis because they are done under septic techniques. This myth also makes caretakers not seek prompt medical attention for diarrhoea leading to severe dehydration and shock with unfavorable outcomes. Management warrants rehydration and use of broad-spectrum antibiotics. Delayed medical attention and invasive lancing are associated with severer disease and poorer outcomes. There is need to conduct community sensitization and educate parents/caretakers truths of teething and dangers of gum lancing as well as the need to seek prompt health services for fever and diarrhoea. Health care workers especially at community level also need to be educated on teething so that they may be able to convey appropriate information to concerned caregivers. We recommend the need by the government to spearhead the relevant community education and legal measures be taken against individuals who perform such practices in the community.

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