

PRIKAZ SLUČAJA – CASE REPORT

## Case report of a Nipple Caused Cyanotic Spell

Prikaz slučaja cuclom izazvane cijanotične krize

*Hiba Jawish<sup>1</sup>, Mohammed Jawish<sup>1</sup>, Bojko Bjelakovic<sup>1,2</sup>*

<sup>1</sup> Clinic of Pediatrics, Clinical Center Nis, Serbia

<sup>2</sup> Faculty of Medicine, University of Nis, Nis, Serbia

**Summary** A 5-month-old female infant was admitted due to loss of consciousness following an episode of choking and cyanosis after a bottle feeding for further clinical assessment. Clinical evaluation didn't reveal abnormalities therefore parents were advised to change the nipple type. Reported symptoms didn't occur again during follow-up over a six-month period.

According to the authors best knowledge, this is the first case report of cyanotic spell with loss of consciousness caused by nipple in the pediatric literature.

**Key words:** nipple, cyanotic spell, infant

**Sažetak** Prikazujemo slučaj odojčeta starosti 5 meseci, koje je primljeno zbog gubitka svesti nakon više ponovljenih epizoda gušenja i cijanoze, a nakon hranjenja adaptiranom mlečnom formulom na flašicu sa cuclom. Nakon kliničke procene i detaljne anamneze roditeljima je savetovano da promene tip cucle koja nije bila anatomski oblikovana.

Nakon promene cucle u anatomski oblikovanu, simptomi se nisu ponovili tokom praćenja odojčeta narednih 6 meseci.

Prema našem saznanju, ovo je prvi slučaj u pedijatrijskoj literaturi da je ne-anatomska cucla izazvala cijanotični napad sa gubitkom svesti.

**Ključne reči:** Cucla, cijanotična kriza, odojče

### Case report

We report a case of a 5-month-old female, healthy infant who presented with loss of consciousness following the episode of spitting up, choking and cyanotic spell after a bottle feeding.

We have obtained informed consent of both infant parents to publish a case.

Infant past medical history was significant for daily episodes of spitting up and vomiting following feedings and occasional breathing crises (choking, wheezing) during the past two months. Other medical history data were unremarkable with the exception that the child's symptoms started at the beginning of the 3<sup>rd</sup> month when formula feeding was introduced.

According to the parents' report, at that time the baby started vomiting and spitting up daily and frequently had episodes of choking and noisy breathing.

On three occasions cyanotic spells followed the episodes of choking and noisy breathing.

They have noticed that bottle feeding always preceded the events but they were unable to explain these events by any other predisposing factor.

When the first two cyanotic episodes occurred, they tried by themselves to help their child with mouth to mouth breathing.

However, the last cyanotic episode was associated with loss of consciousness, after which they called emergency medical service and the baby was brought to our clinic.

According to a medical report from the emergency doctor at the scene, the baby was unconscious, cyanotic, HR 68/min, RR 12/min and was urgently transported to our institution.

At the admission to our institution, the 5-month-old female infant was slightly drowsy, afebrile, RR 38/min, HR 110/min, BP 85/45 mmHg without other clinical pathology.

Other physical examination revealed slight hypotonia and bilateral fine crackles bronchi in the basal region of the lungs.

Taking into the consideration the medical history data (all kinds of health problems started in 3<sup>rd</sup> month, soon after the bottle feeding was introduced), the fact that the time interval between bottle feeding and onset of medical issues were very short and regularly (on daily basis). Based on that we suspected that bottle feeding was the cause of patient symptoms.

With that idea, we examined the nipple size, shape and checked the adequacy of formula milk. Although the nipple was of appropriate size hole (0), we noticed that its shape was rounded and different from flat shaped mothers' areola and nipples.

The decision was made at first to advise parents to change the nipple shape with anatomic one (slightly flattened) silicon nipple and to observe patient during next few bottle feedings without additional medical examinations. Figure 1

No similar symptoms were noted during the next three days of hospital care. We also followed our patient the next 6 months and obtained feedback that the baby was well without any difficulties.

**Figure 1.** Anatomical nipple  
**Slika 1.** Anatomska cucla

**Figure 1a.** Front view of Anatomical Nipple  
**Slika 1a.** Pogled s prednje strane anatomski cucla



## Discussion

To the authors best knowledge, this is the first reported case of "iatrogenic nipple" as foreign body causing infants cyanotic spells and loss of consciousness due to inadequate nipple shape and swallowing difficulties in the pediatric literature.

Taking into consideration the long medical history of our patient, severity of clinical picture as well as other differential diagnostic dilemmas such as vascular ring anomaly, milk protein intolerance, respiratory foreign body, hypertrophic pyloric stenosis, tracheoesophageal fistula, our

patient would certainly require further and comprehensive clinical examination in the similar clinical settings.

**Figure 1b.** Side view of Anatomical Nipple  
**Slika 1b.** Pogled sa strane anatomski cucla



**Figure 1c.** Top view of Anatomical Nipple  
**Slika 1c.** Pogled odozgo na anatomski cucla



However, the prompt disappearance of symptoms after changing the type of nipple (anatomical instead of classically rounded nipples) strongly suggest the iatrogenic cause of presenting clinical symptoms.

It is well established that the swallowing center receives descending influences from the cerebral cortex and sub-cortical areas and that central control of swallowing is modified by peripheral feedback from the pharyngeal, laryngeal, and esophageal regions. (1)

The most logical explanation of what had happened in our case might be explained by the fact that some infants who are breastfed develop very strong swallowing reflex pattern and motor memory making them very hard to quickly switch from well-known mother nipples shapes to new not so familiar "non-natural or foreign body" and non-anatomic fabric nipple shapes.

Hence, a possible sequence of events could be as follows; a) "new non-anatomic" foreign body nipple stimulating different coordination of normal dynamics of respiration and swallowing b) increased chance of subsequent pulmonary aspiration. (2)

Our opinion that among the most common factors affecting the swallowing reflex such as muscle weakness, body position, timing of swallow and changes in respiratory mechanics, different nipple shape must be considered in similar clinical scenarios. (3)

Our case report represents a pretty simple but very important clinical entity of which pediatricians must be aware when evaluating infants with similar symptoms.

What is most important, the problem can be easily solved and children spared from additional unnecessary examination.

## References

1. Broussard DL, Altschuler SM. Central integration of swallow and airway- protective reflexes. *Am J Med* 2000; doi:10.1016/S0002-9343(99)00340-X.
2. Nishino T. The swallowing reflex and its significance as an airway defensive reflex. *Front Physiol* 2013; doi:10.3389/fphys.2012.00489.
3. Elad D, Kozlovsky P, Blum O, et al. Biomechanics of milk extraction during breast-feeding. *Proc Natl Acad Sci* 2014 ; doi:10.1073/pnas.1319798111.

---

**Primljen/Received:** 9.2.2023.

**Prihvaćen/Accepted:** 13.2.2023.

---

## Corresponence to:

Bojko Bjelakovic M.D., Ph.D. Assoc. Prof.  
Clinic of Pediatrics, Clinical Center, Nis  
Zorana Djindjica 48 Boulevard  
18000 Nis, Serbia  
Mail: bojko968@gmail.com

---