Caso clinico

Case report

A strange gingival swelling in an Italian child: a case of oral myiasis

Una strana tumefazione gengivale in un bambino italiano: un caso di miasi orale

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INTRODUCTION

Zumpt was the first to define myiasis as an infestation of live humans and vertebrate animals by dipterous larvae, which for a certain period feed on the host's dead or living tissues, body liquids, substances or ingested food [1, 2]. Oral myiasis is a condition in which soft tissues of the oral cavity are invaded by the larvae of flies [1]. Oral myiasis was first described by Lawrence in 1909. Since then, it has been mainly reported in Asia and South America and seldom in more developed countries [3-6]. In Europe few cases of oral myiasis have been described in children [7]. The cases recorded in Italy have concerned adults with ocular or cutaneous manifestations alone [8-10]. We report an unusual infestation of the oral cavity of an Italian child. To our knowledge, it is the first case recorded in Italy and the second in Europe [7].

CASE REPORT

A five-year-old boy was admitted to Regina Margherita Children's Hospital in Turin (NW Italy) to undergo cardiac surgery correction of a congenital heart defect consisting in an aortic aneurysm associated with monocuspid aortic valve. The child was Italian and lived, together with his poor family, in a rural area in southern Italy; he usually followed his father in sheep-farming.

The day after the cardiac surgery, during Intensive Care Unit stay, he presented an erythematous, painful gingival swelling. Examination of his oral cavity showed poor oral hygiene, gingivitis and a high number of caries involving primary superior central and lateral incisors and both superior canines. He was afebrile, with no signs of purulent abscess in the involved area.

After a few hours some small and moving wormlike objects were seen coming out through a tunnel shaped orifice on the upper lip (Figure 1), crawling along the gingival fornix. Immediately they were manually removed. The sample consisted of fourteen cylindrical larvae, about 3 mm long, white to grey in colour, with a black spot in the final section of the bodies (Figure 2). After complete removal, the lesion was irrigated with saline solution and antibiotic was given to avoid secondary infection (ampicillin/sulbactam i.v. 250 mg four times a day for 5 days followed by oral administration of amoxicillin/clavulanate 500 mg twice a day for 15 days). It was not possible to identify the larvae species but, from their epidemiological and morphological features, we could speculate that they belonged to *Oestrus ovis*.

Three days later, oral examination of the patient revealed a gradual decrease in gingival

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Figure 1 - Child's oral cavity with multiple caries involving primary superior central and lateral incisors and both superior canines. The upper lip shows the tunnel-shaped orifice from which larvae came out.

Figure 2 - Sample of Diptera larvae drawn from child's oral cavity.

swelling; the complete clinical resolution was about two weeks later. Six months after the diagnosis of oral myiasis the child underwent careful cleaning of the whole oral cavity. Follow-up examination two years later revealed the boy's good clinical conditions.

DISCUSSION

The most recurrent cases of oral myiasis concern indigent, alcohol-dependent, mentally handicapped, epileptic patients with lacerated lips following seizures or patients with very poor dental and oral hygiene. Frequently it has been reported in people living in villages and rural areas close to livestock [3, 11, 12]. Considering only children, the main predisposing factors are incompetent lips, thumb sucking habits or continuous mouth breathing [12].

Infestation in humans may be classified in three ways, depending on the condition of the tissues involved: accidental myiasis caused by the ingestion of infected meat; semi-specific myiasis when maggots affect necrotic tissue of the wound; obligatory myiasis in which larvae are inoculated into undamaged tissue by the fly. Typically an inflammatory reaction develops in the involved site, often associated with ulceration and superinfection by bacterial pathogens [1].

In the present patient, the maggots may well have been laid directly by the fly in and around the mouth, feeding and growing easily into the gum sulcus. The location of the lesions in the anterior part of the oral cavity may suggest that infestation occurred because the child breathed perpetually through his mouth, an open mouth being a suitable place for egg positioning. Furthermore, he usually stayed outdoors near sheep, where a considerable quantity of flies are normally present. In this case the lack of regular oral care may be the reason why the lesions went unnoticed for a long time.

Management of oral myiasis should aim at careful mechanical removal of larvae, sometimes forcing them to emerge through the use of irritating solutions, followed by irrigation with warm saline solution [3, 13]. The use of systemic ivermectin can be favourable in more severe cases [11, 13]. In our case the manual removal of the maggots was the best treatment. The physicians preferred to administer antibiotic prophylaxis to prevent bacterial superinfection.

Although human myiasis is anecdotal in children living in more developed countries, we should focus on preventing the disease by educating people and controlling the growth of the fly population [11, 12].

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Keywords: myiasis, child, larva, gum.

SUMMARY

Oral myiasis is a condition in which tissues of the oral cavity are invaded by the larvae of flies. It is a rare disease in humans, often associated with very poor dental and oral hygiene. In children the main predisposing factors are incompetent lips, thumb sucking habits and continuous mouth breathing. The condition has been reported mainly in Asia and South America and rarely in more developed countries.
The cases recorded in Italy concern adults with ocular or cutaneous manifestations alone. We describe an unusual infestation of the oral cavity of a five-year-old Italian boy with a severe congenital heart defect. He presented a gingival swelling and, after a few hours, some larvae could be seen moving through his oral cavity. They were removed manually and an oral antibiotic was given to avoid a bacterial superinfection.
Three days after, oral examination of the patient revealed a gradual decrease in gingival swelling; complete clinical resolution was achieved about two weeks later. This case is reported as a reminder to consider oral myiasis in the event of suspected gingival swelling in children, especially if they have predisposing factors or if they come from an endemic area.

RIASSUNTO

La miasi orale è una condizione nella quale i tessuti della cavità orale vengono invasi dalle larve di mosche. Si tratta di una patologia rara nella specie umana, frequentemente associata a scarsa igiene orale. I principali fattori predisponenti, nei bambini, sono l'insufficiente chiusura delle labbra, l'abitudine a succhiarsi il pollice e la persistente respirazione con la bocca aperta.
La patologia è stata riportata soprattutto in Asia e in America del Sud e raramente nei paesi sviluppati. I casi registrati in Italia riguardavano persone adulte con solo manifestazioni oculari o cutanee di miasi.
Descriviamo un'infestazione inusuale del cavo orale in un bambino italiano di 5 anni affetto da una grave patologia cardiaca congenita.
Il bambino ha presentato tumefazione gengivale dalla quale, dopo poche ore, si è potuta notare la fuoriuscita di alcune larve che si muovevano nella cavità orale. Le larve sono state rimosse manualmente ed è stato somministrato antibiotico per via orale per evitare un'infezione batterica secondaria.
Tre giorni dopo, l'esame della cavità orale del paziente rivelava una graduale riduzione del rigonfiamento; la completa risoluzione del quadro clinico si è avuta circa due settimane dopo.
Questo caso è stato riportato per ricordare di considerare la miasi orale in caso di tumefazione gengivale in un bambino, soprattutto se presenta fattori di rischio o se proviene da aree ad alta endemia per tale patologia.

REFERENCES

[1] Moshref M., Ansari G, Lotfi A. Oral gingival myiasis: a case report. *Int. J. Trop. Med*. 3, 97-100, 2008.
[2] Zumpt F. Myiasis in man and animals in the old world. In: A text book for physicians, veterinarians and zoologists, 1965, p.109. London Butterworth and Co. Ltd.
[3] Bhatt A.P., Jayakrishnan A. Oral myiasis. *Int. J. Ped. Dentist*. 10, 67-70, 2000.
[4] Avula J.K., Avula H., Arora N., Manchukonda U.K., Vivekavardhan Reddy N. Orofacial myiasis of the gingiva and nasal cavity: a report of two cases and general review. *J. Periodontol*. 82, 1383-1388, 2011.
[5] Rossi-Schneider T., Cherubini K., Yurgel L.S., Salum F., Figueiredo M.A. Oral myiasis: a case report. *J. Oral Sci*. 49, 85-88, 2007.
[6] Casanova-Roman M., Sanchez-Legaza E., Sanchez-Porto A., Murga C. Aural myiasis in an infant. *Infezioni in Medicina* 18, 175-176, 2010.
[7] Faber T.E., Hendrikx W.M. Oral myiasis in a child by the reindeer warble fly larva Hypoderma tarandi. *Med. Vet. Entomol*. 20, 345-346, 2006.

[8] Gelardi M., Fiorella M.L., Tarasco E., Passalacqua G., Porcelli F. Blowing a nose black and blue. *Lancet.* 373, 780, 2009.
[9] Otranto D., Cantacessi C., Santantonio M., Rizzo G. Oestrus ovis causing human ocular myiasis: from countryside to town centre. *Clin. Experiment. Ophthalmol.* 37, 327-328, 2009.
[10] Varani S., Tassinari D., Elleri D., et al. A case of furuncular myiasis associated with systemic inflammation. *Parasitol. Int.* 56, 330-333, 2007.
[11] Abdo E.N., Sette-Dias A.C., Comunian C.R., Dutra C.E., Aguiar E.G. Oral myiasis: a case report. *Med. Oral Patol. Oral Cir. Bucal.* 11, E130-E131, 2006.
[12] De Souza Barbosa T., Salvitti Sá Rocha R.A., Guirado C.G., Rocha F.J., Duarte Gavião M.B. Oral infection by Diptera larvae in children: a case report. *Int. J. Dermatol.* 47, 696-699, 2008.
[13] Shinohara E.H., Martini M.Z., De Oliveira Neto H.G., Takahashi A. Oral myiasis treated with ivermectin: case report. *Braz. Dent. J.* 15, 79-81, 2004.