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## Attagenus larva in the sinus cavity in a patient with complications after the use of hyaluronic acid filler

*Larva de Attagenus na cavidade nasal em um paciente com complicações após o uso de preenchimento de ácido hialurônico*

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### ABSTRACT

A wide range of dermal fillers is now available for use in the beauty industry. We present a case of a 33-year-old woman with complications after hyaluronic acid injection by a non-medical practitioner. Two weeks after the injection, bilateral sinus pain, fever, and burning sensation occurred in the cheek area. She underwent a detailed diagnosis revealing *Attagenus* larva in the paranasal sinus. Despite treatment, the symptoms remained. Thus, hyaluronidase was administered in the infraorbital area, obtaining a full remission.

**Keywords:** Hyaluronic acid; Nasal cavity; Dermatology; Larva; Dermal fillers.

### RESUMO

Uma ampla variedade de preenchimentos dérmicos está agora disponível para uso na indústria da beleza. Apresentamos o caso de uma mulher de 33 anos com complicações após injeção de ácido hialurônico por um não médico. Duas semanas após a injeção, dor nos seios da face bilateral, febre e sensação de queimação ocorreram na área da bochecha. Ela foi submetida a um diagnóstico detalhado revelando larva de *Attagenus* nos seios paranasais. Apesar do tratamento, os sintomas continuaram presentes, sendo administrada hialuronidase na região infraorbital com remissão completa.

**Palavras-chave:** Ácido Hialurônico; Cavidade nasal; Dermatologia; Larva; Preenchedores dérmicos.

## Case report

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## INTRODUCTION

Dermal fillers injection is one of the most common procedures in aesthetic medicine practice. According to Aesthetic Plastic Surgery Statistics from 2020, it is among the top two most popular non-surgical procedures, right after injection of neurotoxins.

Although facial filler treatments with hyaluronic acid (HA) are reasoned as minimally invasive, they are not free from complications. The most frequent non-vascular adverse events of hyaluronic acid administration include swelling, granulomas, and infections. However, ischemia, necrosis, and blindness are considered the most common vascular complications. Injections with hyaluronidase are indicated as the treatment of choice in dealing with complications after the use of HA fillers.<sup>1</sup>

We present a case of a patient with nasal infestation with *Attagenus* larva discovered during the diagnosis.

## CASE REPORT

A 33-year-old woman was admitted in March 2021 due to exacerbation of persistent pain in the right infraorbital area starting four days before the hospitalization. At admission, the patient presented no concomitant edema, but a periodic burning sensation. Physical examination revealed soft skin with even consistency and no inflammation and no tissue resistance.

Detailed anamnesis revealed a history of rheumatoid arthritis, in remission for four years, as well as hypothyroidism. Also, the patient reported two episodes of acute urticaria of unknown etiology requiring ER intervention several years ago. Numerous cosmetic procedures were performed in the past.

In August 2020, a beautician performed a procedure to fill the cheeks and the tear trough with hyaluronic acid of unknown origin, 1 ml per side. Two weeks after the injection, the patient reported bilateral sinus pain, fever, and burning sensation in the cheek area. Therefore, amoxicillin with clavulanic acid was administered but without effect.

Due to lack of clinical improvement, a month later clindamycin 600 mg twice daily was included for a week. Also, nasal irrigation was performed by the ENT specialist, rinsing out the larva that was identified as *Attagenus* larva (Figure 1) in The Institute of Maritime and Tropical Medicine in Gdynia, Poland.

The patient was assessed with computed tomography (CT) scan twice over five months. The first CT scan revealed no visible foreign body in the sinus cavity, circular thickening of the mucous membranes in the maxillary sinuses suggestive of an inflammatory process, bilateral obstruction of the maxillary sinus ostia, and deviated nasal septum to the right side. The second CT scan showed only trace mucosal changes in the right maxillary sinus and no inflammation in the remaining paranasal sinuses.

During the appointment in March 2021, we implemented methylprednisolone 16 mg/day, azithromycin 500mg/day, and bilastine 20 mg twice daily. At the three-week follow-up visit, the patient admitted pain reduction; nonetheless, paresthesia

was still inherent. Given these facts, hyaluronidase in the total dose of 30 IU was administered in the area of the right tear trough. Methylprednisolone was reduced to 12 mg daily.

Seven days after the hyaluronidase administration, we observed full remission of pain and paresthesia. Further reduction of methylprednisolone was applied, this time to 4 mg every seven days.

## DISCUSSION

Due to the growing popularity of aesthetic medicine and its profitability, many other practitioners with minimal or no training and medical background have ventured into the aesthetic industry.<sup>2</sup> It is estimated that complications after treatments in aesthetic medicine occur relatively more often in patients treated by practitioners from outside the medical area.<sup>2,3,4</sup> Lack of appropriate professional qualification, incorrect injection technique, and absence of asepsis may lead to serious complications.

Regarding the facial aesthetic procedures, collecting a profound history of allergies, systemic diseases, current treatment, and previous procedures is mandatory.<sup>5</sup> Filler treatments are contraindicated in active autoimmune diseases such as rheumatoid arthritis, systemic lupus erythematosus, and Hashimoto's disease. Our patient report is an example of how dermal filler treatments may be contraindicated, particularly due to a history of rheumatoid arthritis, and should undoubtedly be consulted with an experienced physician. Thus, we want to emphasize the necessity to perform aesthetic medicine treatments by trained doctors. Complementary measures by law enforcement and the communities themselves may help decrease the supply of illegal cosmetic procedures.<sup>3,4</sup>



**FIGURE 1:**  
*Attagenus* larva  
rinsed out of the  
nasal cavity

Direct trauma to the nerve, straight injection of filler into the nerve, or product compression can emerge into unintentional nerve injury, an uncommon complication of dermal filler procedures. Nerve injury is divided into reversible or permanent. The most frequent localization of paresthesia and anesthesia is the infraorbital nerve.<sup>6</sup> Presented patient's main symptoms, pain and paresthesia, must probably have resulted from compression of the infraorbital nerve caused by the dermal filler. Complete reduction of symptoms after the hyaluronidase administration supports this hypothesis.

Hyaluronidase is an enzyme that breaks down hyaluronic acid, and the Food and Drug Administration (FDA) has approved its off-label use in cosmetic medicine.<sup>1</sup> With the increasing popularity of hyaluronic acid fillers, hyaluronidase has become an essential tool for correcting complications and unsatisfactory outcomes following filler injection. For this reason, adequate knowledge of hyaluronidase is needed when conducting procedures involving hyaluronic acid filler. No major randomized

trials are available on its use in aesthetic medicine, so the only information accessible is focused on a literature review and the authors' practical recommendations. Since different HA formulations exhibit different susceptibility to degradation after hyaluronidase administration, there are no defined recommendations for hyaluronidase dosage in overcorrection.

The authors have found only a few reports discussing the infestation on the nasal cavity.<sup>7,8</sup> Typically, it can occur in tropical and developing countries. Our patient was an accidental *Attagenus* larva host and probably became infested while on vacation in Masuria, Poland, in August 2020. To our knowledge, this is the first case report of infestation of the sinus cavity with *Attagenus* larva in humans. In conclusion, an infestation of the nasal cavity is a rare occurrence that often causes a mild self-limited illness. Nonetheless, it can pose a diagnostic challenge to physicians unaware of this condition. Furthermore, the lack of data on consensus treatment will make managing these cases more challenging.<sup>8</sup> ●

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