

Nicolau Syndrome as Complication of Aesthetic Procedures

Irineu Gregnanin Pedron*

Professor, Department of Periodontology, Implantology, Stomatology, Integrated Clinic, Laser and Therapeutics, Universidade Brasil, São Paulo, Brazil

*Corresponding Author: Irineu Gregnanin Pedron, Professor, Department of Periodontology, Implantology, Stomatology, Integrated Clinic, Laser and Therapeutics, Universidade Brasil, São Paulo, Brazil.

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Recently, in Brazil, a case of Nicolau Syndrome was reported due to an alectomy procedure performed by a dental surgeon [1]. Alectomy is the bilateral partial removal of the distal part of the nasal wings, promoting the thinning of the nose. It has been presented as a more conservative proposal in relation to structured rhinoplasty. However, in this procedure, the cartilages that support the nose are also removed to allow air to pass through. Nasal obstruction is one of the main complaints of patients, as well as the anti-aesthetic effect of scar tissue retraction. Depending on the damage caused, several reconstructive plastic surgeries of the nose are required for repair [2]. In the news article presented [1], according to the patient, 14 repair surgeries have already been performed, including skin and fat grafting, besides the reconstruction of one of the nostrils (Figure 1).

Until then unknown, Nicolau Syndrome, also called Freudenthal-Nicolau Syndrome and drug cutaneous embolism, is a rare entity determined by extensive tissue necrosis in the area of intramuscular application of certain drugs, including antibiotics (penicillins), corticosteroids, nonsteroidal anti-inflammatory drugs, antipsychotics, antiepileptics, antihistamines, immunomodulators, facial fillers and autologous fat [3-10].

To date, 154 articles were found registered in PubMed Medline with the words "Nicolau Syndrome", of which 3 articles [8-10] were found crossing the words "Nicolau Syndrome" and "facial filler", and 4 articles [6-9] crossing the words "Nicolau Syndrome" and "hyaluronic acid".

Nicolau Syndrome is characterized by livedo reticularis or livedoid dermatitis, one of the first manifestations of vascular obstruction and subsequent tissue necrosis [3-10]. It was originally described by Freudenthal in 1924 and by Nicolau in 1925, who observed livedo reticularis following intra-arterial application of oily bismuth salts in the pre-penicillin era for the treatment of syphilis [6-8,10].

The difference between cases of Nicolau Syndrome and obstruction caused by gel facial fillers (usually hyaluronic acid) is that the first generally involves pathways of the inflammatory process activated by the injected material, whereas in the second case, vascular obstruction is observed mechanically. However, the two manifestations are clinically similar, evolving equally. Initial bleaching is observed, followed by livedo reticularis, erythromelalgia, ulceration or dermal infarction [6-10]. Livedo (from Latin *lividus*, bluish or leaden) and reticular (from Latin *reticularis*, root, net), manifest as a violaceous macula, with net-like skin discoloration, which is usually a benign effect associated with cold exposure. In cases of Nicolau Syndrome, livedo reticularis is related to decreased blood flow resulting from cutaneous thromboembolism. It is also seen at the border of necrotic areas. The clinical evolution of



Antes e depois da cirurgia no nariz de Eielma Carvalho — Foto: Eielma Carvalho/Arquivo Pessoal

Figure 1: Pre and post operative view of the patient.

Source: https://g1.globo.com/go/noticia/2022/07/06/mulher-denuncia-que-perdeu-parte-do-nariz-e-ficou-com-sequela-apos-cirurgia-estetica-com-dentista-destruiu-minha-autoestima.ghtml?utm_source=facebook&utm_medium=social&utm_campaign=g1&fbclid=IwAR0nwm6FpZVqM8hkEeCRHIMIWpF5peGm3BuTY-cQ5EtMwXmNsaCAGu6HAK00&fs=e&s=cl

this event may include pain and disproportionate discomfort, except when local anaesthetics are administered [6-10]. There is also a risk of blindness when there is obstruction of the ophthalmic artery, or ischemic stroke [4,8,9,10]. Some authors have established the relationship between bad technique and the Nicolau Syndrome [2-5,8,10].

Previous procedures such as rhinoplasty may modify the vasculature of the nose tip, becoming a risk factor for the involvement of Nicolau Syndrome. Hyaluronic acid has great hydrophilic properties and may easily compress and block the flow in the vascular lumen and cause retrograde embolization. The most recent products on the market are mixed with lidocaine for anaesthetic purposes. However, lidocaine is a vasodilator agent and may increase the risk of embolization [8].

In cases of Nicolau Syndrome caused by the application of hyaluronic acid, one of the therapeutic possibilities is the injection of hyaluronidase [5,8-10]. This substance, in turn, is highly immunogenic and can also, because of its animal origin, cause Creutzfeldt-Jakob Disease, a human variant of mad cow disease [5].

In Brazil, Resolution 230 of 14 August 2020 of the Council of Dentistry expressly prohibited the performance of nasal surgeries by dental surgeons [2]. It is important to emphasize that, in the face of possible complications arising from aesthetic procedures performed by the dental surgeon, it becomes very likely the course of ethical-judicial actions against the professional, establishing the need for compensation for aesthetic and moral damages [2-5, 11-13]. The dental surgeon should transmit true information to the patient about the technique and possible risks. Faced with the persistence of the patient, the dental surgeon should refuse the procedure and refer him/her to a plastic surgeon [2].

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