

adults, although life-threatening conditions such as myocardial infarction and stroke can also cause it.⁶

Pulmonary embolus (PE) may not always cause typical symptoms as dyspnea; it is asymptomatic (32% of cases) or may present with atypical symptoms as acute confusion, chest and back pain, and syncope.⁷ Rarely, one of the atypical clinical presentations of PE may be delirium, as mentioned in this case report, and PE should be investigated in elderly adults presenting with delirium, even in the absence of typical symptoms. In conclusion, while assessing the etiology of delirium, clinicians should remember that one of the acute conditions leading to development of delirium is PE, particularly in elderly adults.

Pinar Soysal, MD
Abmet T. Isik, MD

Department of Geriatric Medicine, Faculty of Medicine,
Dokuz Eylul University, Izmir, Turkey

ACKNOWLEDGMENTS

Conflict of Interest: The editor in chief has reviewed the conflict of interest checklist provided by the authors and has determined that the authors have no financial or any other kind of personal conflicts with this paper.

Author Contributions: All authors participated in the study concept, analysis and interpretation of data, and preparation of the letter.

Sponsor's Role: There was no sponsor.

REFERENCES

1. Siddiqi N, House AO, Holmes JD. Occurrence and outcome of delirium in medical in-patients: A systematic literature review. *Age Ageing* 2006; 35:350–364.
2. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, 5th Ed. Washington, DC: American Psychiatric Association, 2013.
3. Meagher DJ, Leonard M, Donnelly S et al. A longitudinal study of motor subtypes in delirium: Relationship with other phenomenology, etiology, medication exposure and prognosis. *J Psychosom Res* 2011;71:395–403.
4. Marcantonio E, Simon S, Bergmann M et al. Delirium symptoms in post-acute care: Prevalent, persistent, and associated with poor functional recovery. *J Am Geriatr Soc* 2003;51:4–9.
5. Witlox J, Eurelings LS, de Jonghe JF et al. Delirium in elderly patients and the risk of post discharge mortality, institutionalization, and dementia: A meta-analysis. *JAMA* 2010;304:443–451.
6. George J, Bleasdale S, Singleton SJ. Causes and prognosis of delirium in elderly patients admitted to a district general hospital. *Age Ageing* 1997; 26:4237.
7. Stein PD, Matta F, Musani MH et al. Silent pulmonary embolism in patients with deep venous thrombosis: A systematic review. *Am J Med* 2010; 123:426–431.

BILATERAL ORAL NODULES AFTER THE USE OF A DERMAL FILLER CONTAINING POLYMETHYLMETHACRYLATE MICROSPHERES IN AN OLDER WOMAN

To the Editor: An older woman presented at the Clinic of Stomatology, Federal University of Ceará (Sobral, Brazil) complaining of hardened intraoral nodules present for

7 days. In the clinical report, she reported that the nodules arose spontaneously, with facial redness, swelling, and fever. She reported the use of 500 mg of paracetamol (at 6-hour intervals for 3 days) for fever control.

Initially during the anamnesis, the woman did not recall any dental or medical procedures that she thought were related to the appearance of the lesions and denied any drug allergies. During the extraoral examination, a slight swelling of the face, especially in the region of nasolabial and labial commissures, was observed. Intraoral examination detected firm nodules in the buccal mucosa bilaterally, with normal skin color and without mobility (Figure 1A,B).

After the initial consultation, an incisional biopsy in the right oral mucosa was performed under local anesthesia, and the surgical specimen was sent for histopathological analysis. Soon after the procedure, the woman reported that she had used facial filler material (polymethylmethacrylate) 9 years before. Thus, the main clinical hypothesis was foreign body reaction resulting from the use of this material. She was prescribed corticosteroids (20 mg prednisone) for 5 days as postoperative medication.

Histopathological analysis showed fragments of conjunctive tissue exhibiting exuberant presence of small, round vacuoles, all of approximately the same size, consistent with the exogenous material that had been used (polymethylmethacrylate), permeated with mononuclear

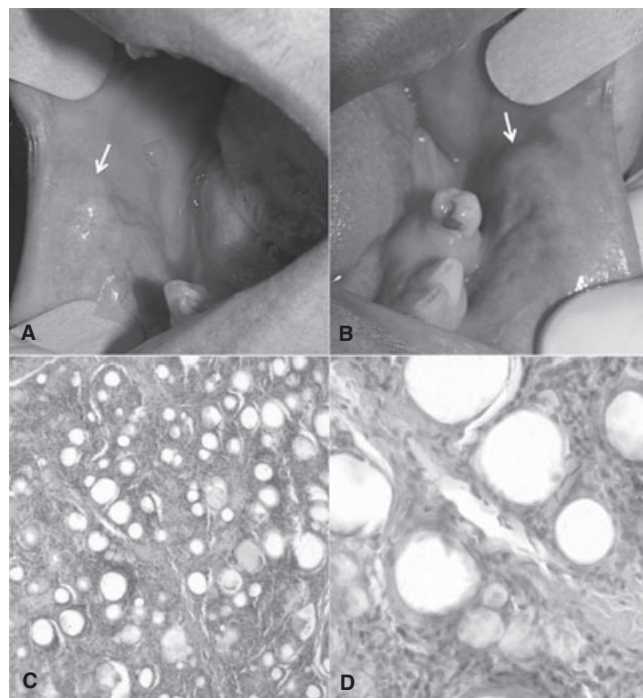


Figure 1. Intraoral examination (A, right side; B, left side) showing irregular bilateral nodules located in the buccal mucosa (arrow). (C) Histological sections show fragments of conjunctive tissue exhibiting exuberant presence of small vacuoles apparently all of the same size, consistent with exogenous material (hematoxylin and eosin (H&E) $\times 100$). (D) High-resolution image of vacuoles compatible with exogenous material permeated by a moderate mononuclear cell infiltrate (H&E $\times 400$).

inflammatory infiltrate (Figure 1C,D). According to the clinical and histopathological findings, the final diagnosis was foreign body reaction to polymethylmethacrylate. Surgery was not performed because of the diffuse aspect of the lesions and because it is unlikely that intraoral removal of polymethylmethacrylate particles would have resolved the external problem. Not all of the filler was removed, and she was of the likelihood of recurrence of the swelling.

The use of dermal filler has increased in individuals seeking dental care, and there is a significant risk of adverse reactions to the substances used for these procedures, whose manifestations can simulate intraoral disease.¹ Clinical adverse reactions to aesthetic filler materials can consist of pain, swelling, ecchymosis, erythema, dyschromia, changes in skin texture, nodules, and embolic events.^{2,3} In the present case, intraoral bilateral nodules corresponding to regions of application of aesthetic filler material without other involvement were evidenced.

A granulomatous foreign body reaction may appear after a variable time. The occurrence of late reactions is rare.² In the current case, the symptoms and signs appeared 9 years after dermal application of the material. There were no signs of infection related to the appearance of lesions. The lesions were probably due to the depth to which the material was injected into the skin, which explains why the material penetrated through the buccinator muscle.

Histologically, the foreign body reaction has several vacuoles corresponding to the deposited filler material. Four histological types of foreign body reactions have been identified: type 1, multiple small round cystic spaces containing translucent nonbirefringent microspheres of approximately the same size; type 2, clusters of small translucent pinkish polygonal particles, of irregular size and shape; type 3, multiple small translucent and birefringent particles of different size and shape, some more or less spiky; and type 4, a “Swiss cheese” aspect, characterized by small cystic spaces of varying size and shape containing jagged, translucent, nonbirefringent foreign bodies.² In the present case, histology showed exuberant presence of vacuoles consistent with exogenous material similar to histological type 1.

Complete remission of the lesions is not always achieved. Three of 15 individuals described previously³ were considered to have healed, eight showed partial healing, two were not considered to have healed, and two were lost to follow-up. Surgical treatment has been performed in cases of extreme gravity,³ but symptomatic treatments using local or systemic corticosteroids have been performed the most.³ In the present case, the woman was treated using systemic corticosteroids, yielding total regression of facial edema and partial regression of intraoral lesions. From an educational point of view, this case illustrates the potential risks of dermal filling substances and highlights the importance of this knowledge in the field of clinical chemistry.

Fábio W. G. Costa, DDS, PhD
Division of Oral Radiology, School of Dentistry, Federal University of Ceará, Fortaleza, Brazil

Luzia H. Teixeira, DDS
School of Dentistry, Federal University of Ceará, Sobral, Brazil

Francisco S. R. Carvalho, DDS
Department of Oral and Maxillofacial Surgery, Walter Cantídeo University Hospital, Fortaleza, Brazil

Felipe N. Chaves, DDS
School of Dentistry, Federal University of Ceará, Fortaleza, Brazil

Eveline Turatti, DDS, PhD
Division of Oral Pathology, School of Dentistry, University of Fortaleza, Fortaleza, Brazil

Thyciana R. Ribeiro, DDS, MS, PhD
Special Needs Dental Patients, Federal University of Ceará, Fortaleza, Brazil

Karuza M. A. Pereira, DDS, PhD
Division of Oral Pathology, School of Dentistry, Federal University of Ceará, Sobral, Brazil

ACKNOWLEDGMENTS

Conflict of Interest: The editor in chief has reviewed the conflict of interest checklist provided by the authors and has determined that the authors have no financial or any other kind of personal conflicts with this paper.

Author Contributions: Costa, Teixeira, Carvalho: preparation of draft. Costa, Turatti: data collection. Ribeiro, Pereira: completion of manuscript.

Sponsor's Role: None.

REFERENCES

1. Mandel L, Addison S, Clark M. Buccal reaction to silicone cosmetic filler. *J Am Dent Assoc* 2010;141:162-166.
2. Lombardi T, Samson J, Plantier F et al. Orofacial granulomas after injection of cosmetic fillers. *Histopathologic and clinical study of 11 cases. J Oral Pathol Med* 2004;33:115-120.
3. Sanchis-Bielsa JM, Bagan JV, Poveda R et al. Foreign body granulomatous reactions to cosmetic fillers: A clinical study of 15 cases. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2009;108:237-241.

COMMENTS/RESPONSES

CHASING THE “WHITE WHALE” OF ALZHEIMER’S

To the Editor: “The White Whale swam before [Ahab] as the monomaniac incarnation of all those malicious agencies which some deep men feel eating in them....He piled upon the whale’s white hump the sum of all the general rage and hate felt by his whole race from Adam down; and then, as if his chest had been a mortar, he burst his hot heart’s shell upon it...”

Herman Melville’s masterpiece *Moby-Dick* is a tale of fanatical obsession. Told through the eyes of the sailor