Acute Sialadenitis to a Gadolinium Contrast Medium

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Iodinated contrast medium–induced sialadenitis, or "iodide mumps", is a rare nonallergic adverse reaction to iodinated contrast media that is well documented in the literature. This impressive reaction is most often mistaken for allergic angioedema. However, it is a mild reaction and resolves spontaneously within several days. No severe cases have been reported [1]. We report a case of sialadenitis following injection of gadoteric acid for magnetic resonance imaging (MRI).

The patient was a 37-year-old woman who presented with significant bilateral edema 24 hours after an MRI scan using gadoteric acid (Dotarem) to investigate chronic diarrhea (Figure). Her medical history was remarkable only for having undergone a cholecystectomy. Treatment was limited to diosmectite (Smecta) for diarrhea. Given the extent of the parotid and cervical edema, the patient was hospitalized in a continuing care unit after her visit to the emergency department. The examination showed cervical edema and enlargement of the main salivary glands. No associated skin reaction, hemodynamic instability, dyspnea/dysphagia, or intraoral edema was observed. She received 130 mg of IV methylprednisolone and 100 mg of hydroxyzine and was discharged home after 24 hours of observation. Complete resolution took 7 days despite continuous home therapy with methylprednisolone and hydroxyzine. Diosmectite was maintained during hospital care and afterward, without relapse of the edema.

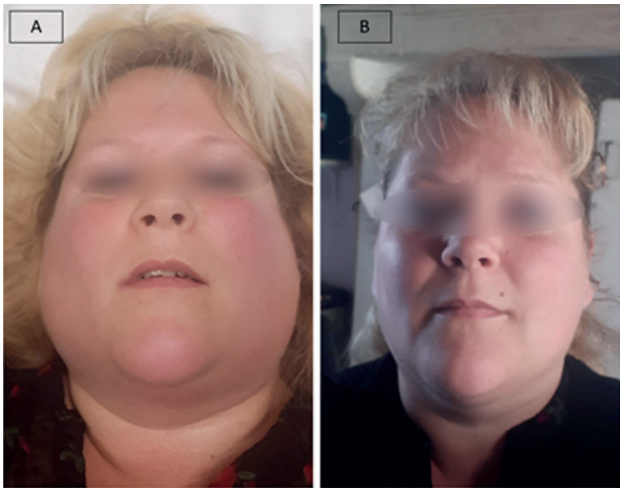

Figure. Photographs of the patient's face during the reaction (A) and 7 days later (B). The patient gave her informed consent for the photographs to be published.

A computed tomography (CT) scan showed asymmetric enlargement of the parotid and submandibular glands, with infiltration of the adjacent soft tissues (supplementary figures 1, 2). Negative results were recorded in the work-up for parotitis and angioedema, which included a blood count, serum electrolytes, creatinine level, serum protein electrophoresis, autoimmune work-up, serum tryptase, thyroid function, C-reactive protein, and a search for active viral infections (EBV, CMV, HIV, hepatitis C and B, and mumps). The results of skin tests performed as part of the allergology work-up carried out 3 months after the reaction were negative. The tests were performed with gadoteric acid 0.05 mmol/mL (279 mg/mL) at the concentrations recommended by the EAACI [2], that is, undiluted for prick-test and diluted at 1/10 for intradermal testing (IDT). Patch testing was performed using undiluted gadoteric acid. The prick and IDT results were read at 20 minutes, followed by delayed readings at 48 and 96 hours for IDT and patch testing.

The patient was referred to the allergy department with a suspected allergy to gadoteric acid. The clinical and imaging findings are consistent with previous reports for iodinated contrast media in cases of iodide mumps [1]. Since the patient improved without stopping diosmectite, the likelihood that this agent was involved in the reaction is very low. Therefore, gadoteric acid was the only suspected drug.

The clinical picture of iodinated contrast medium–induced sialadenitis is one of unilateral or symmetrical parotid and/or submandibular swelling, which is usually painless. Allergology tests are negative, suggesting a nonallergic mechanism. Some studies suggest a higher incidence in patients with renal failure. Jiao et al [1] recently conducted a review of 77 cases of iodide mumps, although they did not find a statistically significant increase in incidence among patients with kidney failure.

Paraclinical investigations in the reported cases showed noninflammatory edema of the salivary glands in ultrasound, MRI, and fine-needle biopsy. Only 2 cases reported inflammatory changes in the surrounding fat. In the case we report, the patient presented with sialadenitis.

The results of the biological work-up were within normal values, and the skin allergy work-up was negative, as in iodide mumps. We also observed infiltration of the fat adjacent to the salivary glands and asymmetric enlargement of the parotid glands (46×70×79 mm on the left and 62×36×66 mm on the right) and of the submandibular glands (27×27×39 mm on the left and 28×27×26 mm on the right). There was no detectable abscess, although enlarged lymph nodes (up to 8 mm in diameter) were observed in the jugular-carotid territories, without necrosis. The patient was not febrile, and no local or systemic clinical inflammatory signs were recorded.

Based on the assumption that the reaction was caused by an immunoallergic mechanism, the patient was initially treated with antihistamines and corticosteroids, although these drugs were not effective. While the mechanism underlying iodide mumps is still unknown, one of the main hypotheses is that of an idiosyncratic phenomenon linked to the toxicity caused by the accumulation of iodine in the canaliculi of the salivary glands. Sialadenitis has been observed after ingestion of Lugol iodine in patients with a history of iodide mumps [4].

Recurrences of iodide mumps have been reported for various iodinated contrast media, albeit without modification or worsening of the condition [4,5]. Premedication did not prevent recurrence in the cases reported. Iodide mumps is therefore not an absolute contraindication to the use of these agents. Furthermore, replacing the molecule, although recommended, does not guarantee the absence of recurrence. The same could be true for gadolinium contrast medium.

Rechallenge was not considered necessary in this patient, who had no comorbid conditions. If the patient needed to receive gadolinium contrast medium in the future, then this could be administered under prudent medical supervision.

Adverse events associated with gadolinium-based contrast media are infrequent [6]. More reports are needed to better understand this peculiar reaction, which is potentially associated with gadoteric acid. Therefore, it is important that allergists and radiologists are aware of its existence.

We report a case of acute sialadenitis presenting as iodide mumps, possibly caused by an infusion of gadoteric acid the day before the onset of symptoms. In this case, sialadenitis could be a rare, nonallergic adverse event induced by gadoteric acid.

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Conflicts of Interest

The authors declare that they have no conflicts of interest.

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