Iodine mumps
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Section: Head & neck imaging
Area of Interest: Head and neck
Procedure: Diagnostic procedure
Imaging Technique: Ultrasound
Imaging Technique: Nuclear medicine conventional
Special Focus: Biological effects Case Type: Clinical Cases
Authors: Rebeca Mirón Mombiela; Cristina Vázquez Romero.
Patient: 41 years, female

Clinical History:
Sudden onset of bilateral symmetrical swollen submandibular region, accompanied by mild odynophagia and dyspnoea. On examination, a firm increase in both submandibular glands is palpated (Fig. 1). Blood tests are normal except for amylase that is elevated (286U/L). Twelve hours before the sudden appearance of symptoms, the patient underwent a pelvic CT with IV contrast.

Imaging Findings:
Upon suspicion of acute bilateral sialoadenitis with normal blood results, cervical ultrasound was requested. The ultrasound revealed submandibular glands with diffuse increase of their echogenicity and their size with lobed edges. No lesions or lithiasis detected, but there was a discrete dilatation of the intraglandular ductal system (Fig. 2). In the study with power Doppler and colour Doppler, increased vascularisation of both glands is observed. The rest of the neck structures explored are normal (Fig. 3). Chest X-ray shows increased soft tissue at the cervical level compared to the previous one from 2009 (Fig. 4).

Discussion:
Acute sialoadenitis has been described as a rare complication following contrast administration. The condition is characterised by rapid, painless, bilateral enlargement of the submandibular glands. The onset varies from a few minutes to days after contrast medium administration. “Iodide mumps” was first described by Sussman and Miller in 1956, and they are about 46 reported cases in the literature, but the true incidence is unknown [1, 2]. The pathomechanism of this hypersensitivity reaction to inorganic iodine is unclear. It occurs both with ionic and non-ionic agents and also with high and low osmolar contrast agents [3]. Iodine-containing drugs are known to induce immediate and delayed hypersensitivity reactions and neutrophilic inflammation, such as vasculitis and iododerma. Iodide mumps is probably not related to an immunologically mediated mechanism. It is presumed to be due to iodine content in the contrast. The reaction seems to be idiosyncratic or related to toxic accumulation of iodide in the ductal system of the salivary glands. The high concentration of iodide in the salivary glands appears to induce oedematous swelling of the mucosa, which leads to ductal obstruction and consequently inflammatory swelling of the salivary glands [4]. Ultrasound imaging can detect these changes and exclude other causes of neck swelling.

The course of iodide mumps is self-limiting, and no treatment is necessary. Supportive therapy and the administration of anti-inflammatory agents might be considered. In some patients, however, complications have
been observed, including associated enlargement of the thyroid and lacrimal glands, erythema of the skin, allergic
vasculitis, pancreatitis, and facial nerve palsy, requiring decompression [1, 2, 4]. Ultrasound imaging of the glands
shows in these cases diffuse swelling and prominent internal low-echoic septa [5, 6], with increased vascularisation
[7].

Both anaphylactoid reactions and iodide mumps tend to recur, but although premedication with corticosteroids is
usually effective in preventing immunologic mediated reactions, it does not seems to prevent the occurrence of
iodide mumps [5].

Radiologist should be aware of this rare complication, know the benign course of the pathology with self-resolution
in most cases. Since there are no prophylactic measures and its long term significance is uncertain [8], these
patients should avoid iodide-based contrast media.

Our patient resolved all symptoms after 8 hours treated with IV hydration. The episode was documented in her
medical history, recommending to avoid iodine contrast when possible.

**Differential Diagnosis List:** Acute sialoadenitis following contrast administration (Iodine mumps), Acute viral
sialodenitis, Acute bacterial sialoadenitis, Obstructive sialolithiasis (rarely bilateral)

**Final Diagnosis:** Acute sialoadenitis following contrast administration (Iodine mumps)

**References:**

Endovasc Surg 19(2):217-8 (PMID: 10727376)
Khoury TR (2014) Iodide mumps after trans-arterial chemoembolization procedure for treatment of hepatocellular
78(926):164-5. (PMID: 15681332)
Acosta-Ochoa MI, Valenciano-Martínez S, Aller-Aparicio C, Palacios-Parada A, Rodríguez-Portela G, Pérez-Díaz V,
**Description:** Ultrasound image at the level of the thyroid gland showing no abnormalities. **Origin:** Mirón Mombiela, R. Departamento de Radiología, Hospital General Universitario de Valencia, Valencia, Spain.
Description: Right submandibular swelling corresponding to enlargement of submandibular glands, a few hours after CT. Origin: Vásquez, C. Departamento de Otorinolaringología, Hospital General Universitario de Valencia, Valencia, Spain.
Description: Patient control showing improvement of submandibular glands size after 8 hours in the emergency department. Origin: Vásquez, C. Departamento de Otorinolaringología, Hospital General Universitario de Valencia, Valencia, Spain.
Description: Transverse images shows (A) right and (B) left enlargement and increased echo intensity of submandibular glands with intraglandular duct dilatation. No calculus detected. Increased intraglandular vascularity detected by Doppler (not shown). Origin: Mirón Mombiela, R. Departamento de Radiología, Hospital General Universitario de Valencia, Valencia, Spain.
Description: Transverse images show (A) right and (B) left enlargement and increased echo intensity of submandibular glands with intraglandular duct dilatation. No calculus detected. Increased intraglandular vascularity detected by Doppler (not shown). **Origin:** Mirón Mombiela, R. Departamento de Radiología, Hospital General Universitario de Valencia, Valencia, Spain.
Figure 4

Description: (A) Chest X-ray shows increased soft tissue at the cervical level compared to the previous (B). Origin: Mirón Mombiela, R. Departamento de Radiología, Hospital General Universitario de Valencia, Valencia, Spain.
Description: (A) Chest X-ray shows increased soft tissue at the cervical level compared to the previous (B). Origin: Mirón Mombiela, R. Departamento de Radiología, Hospital General Universitario de Valencia, Valencia, Spain.