

Case Report

Open Access, Volume 2

Recurrent iodine contrast induced sialadenitis: Case report

Assaf Potruch*; Henny Azmanov

Department of Medicine, Hadassah Medical Organization and Faculty of Medicine, Hebrew University of Jerusalem, Jerusalem, Israel.

***Corresponding Author: Assaf Potruch**

Department of Medicine, Hadassah Hebrew University Medical Center, Ein Kerem, 12000 Jerusalem 91120, Israel.
Tel: +972-54-6493082; Email: poassaf@hadassah.org.il

Received: Oct 29, 2021

Accepted: Dec 08, 2021

Published: Dec 15, 2021

Archived: www.jcimcr.org

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DOI: www.doi.org/10.52768/2766-7820/1480

Abstract

Iodine induced sialadenitis is an uncommon condition, induced by exposure to iodine-containing contrast material.

Although the condition had been reported in the past, the incidence and pathogenesis of this condition is not well understood, and is thought to be caused by either toxic damage from accumulation of iodine in the salivary glands and ducts, or from renal damage leading to iodine excretion disorder. We present a case of a patient with three separate events of parotid enlargement in reaction to iodine contrast material exposure.

Introduction

Iodine induced mumps is the swelling of the submandibular and/or parotid glands as a complication of exposure to iodine used in the contrast material for imaging [1].

The incidence of iodine induced mumps due to exposure to contrast material is not well-known. The pathogenesis of sialadenitis unclear and different theories have been developed.

In this case report we present a patient who had three recurrent events of unilateral submandibular gland swelling following exposure to iodine in three different imaging procedures – coronary angiography, computed tomography with intravenous contrast and trans-arterial chemo-embolization.

To the best of our knowledge, no previous articles have described cases in which the same patient had recurrent events of “iodine induced mumps”.

Case presentation

A 68-year-old male patient with a prior medical history of diabetes and diabetic nephropathy, hypertension, non-alcoholic steatohepatitis and ischemic heart disease.

Six months prior to admission, the patient underwent an abdominal ultrasound that revealed a 2.8 cm lesion in segment 6 of the liver. A follow-up MRI identified the lesion as hepatocellular carcinoma, and due to his high surgical risk, the patient was admitted to the Internal Medicine ward to undergo Trans-Arterial Chemoembolization (TACE).

Upon admission, the patient reported having an iodine allergy, after undergoing two previous exposures.

In order to prepare the patient for the contrast needed, he received prednisone at 13, 7 and one hour prior to the procedure, as well as diphenhydramine an hour prior to procedure.

The patient underwent the TACE procedure without any immediate complications. A day after the procedure, he started complaining of left-sided unilateral neck swelling. Upon examination, the left submandibular area was swollen and tender. Laboratory tests showed elevated levels of amylase as well as an increased leukocyte count.

At this point, the patient revealed that following his previous iodine exposures, he suffered from the same swelling of the submandibular area.

Ten years prior to his current admission, the patient underwent coronary angiography due to angina. The following day, the patient suffered unilateral swelling of the neck. (Add the second exposure).

Discussion

Contrast material has been in use in imaging studies for many years in order to enhance visibility of vascular structures and organs. Iodine-based contrast material is the most commonly used agent in imaging studies such as CT and angiographies [2]. Iodine-based material is classified into ionic and non-ionic. The non-ionic (organic) type covalently binds the iodine, and is considered to have fewer side effects since it does not dissociate into component molecules.

Many of the side-effects from exposure to contrast material are due to the hyperosmolar solution being injected and not the actual iodine.

Cases of sialadenitis as a result of exposure to iodine-based contrast material have been widely described in the past. The first cases were described in 1956 by Sussman [3], with two patients that developed unilateral sialadenitis a few days after undergoing an imaging study that included an iodine based contrast medium.

Patients who suffer from this condition, usually present with unilateral swelling of the submandibular or parotid gland. Symptoms typically appear a few minutes to five days after exposure to iodine [1].

The pathophysiology of this reaction is not well established, it is thought to be caused by reduced renal excretion of the free iodine in the contrast, that in turn is trapped by the salivary glands in the ductal system. This trapping causes ductal cell swelling and partial obstruction of the ducts with an inflammatory response of the salivary gland expressed as sialadenitis [4].

This theory is supported by an observation done by Cohen et al [5], which showed an association between high serum levels of iodine in uremic patients, and the extent and onset of iodine induced mumps. Another supporting fact is that in patients undergoing hemodialysis, dialysis after exposure to contrast material has been shown to shorten the duration of symptoms [4].

However, most cases are described with patients with normal renal function, which raises the question about the actual pathogenesis of iodine induced mumps.

While iodine induced mumps have been associated with skin erythema and facial nerve palsy, the natural history is relatively benign [6]. Remission occurred in all reported cases two to three days after symptoms developed.

In our case, the patient had normal renal function and underwent three different procedures that involved iodine exposure, with different iodine-based compounds. In all three cases, he developed unilateral sialadenitis a few hours after exposure to the contrast material. In the last instance – described here, the patient received premedication with steroids and an H2 blocker prior to iodine exposure in order to avoid an allergic reaction, and still developed said sialadenitis. This occurrence may hint at the fact that the pathogenesis is, at least partially, not an allergic response.

Further studies of the pathogenesis of iodine induced mumps are required in order to try and identify risk factors for patients who may develop this phenomenon. In addition, recognition of this phenomenon is crucial in order to identify it in time and avoid expensive and unnecessary work-up.

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