Case Report

Oyster shell calcium induced parotid swelling

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Received: 28-10-2013 **Revised: 09-01-2014** **Accepted: 16-02-2014**

ABSTRACT

A 59 year old female consumer was started on therapy with oyster shell calcium in combination with vitamin D3 and she presented with swelling below the ear, after two doses. She stopped the drug by herself and the swelling disappeared in one day. She started the drug one day after recovery and again she developed the swelling. She was advised to stop the drug with a suggestion to take lemon to enhance parotid secretion and the swelling subsided. Calcium plays major role in salivary secretion and studies have shown reduced parotid secretion in rats, deficient of vitamin D. But in humans involvement of calcium and vitamin D3 in parotid secretion is unknown. However, the patient had no history of reaction though she had previously taken vitamin D3 with calcium carbonate which was not from oyster shell. Hence, we ruled out vitamin D3 in this reaction and suspecting oyster shell calcium as a culprit. This adverse drug reaction (ADR) was assessed using World Health Organization (WHO) causality assessment, Naranjo's and Hartwig severity scales. As per WHO causality assessment scale, the ADR was classified as "certain". This reaction was analyzed as per Naranjo's algorithm and was classified as probable. According to Hartwig's severity scale the reaction was rated as mild. Our case is an example of a mild but rare adverse effect of oyster shell calcium carbonate which is widely used.

Key words: Adverse drug reaction, oyster shell calcium, parotid swelling

INTRODUCTION

A patient was prescribed oyster shell calcium (500 mg/day) with vitamin D3 (250 IU/day) as supplement and developed parotid enlargement after two doses. Parotid gland may enlarge due to obstruction in parotid duct, inflammation, alcohol intake, diabetes mellitus, cancer, mumps and rheumatoid arthritis. Calcium plays a major role in salivary secretion and studies have shown reduced parotid secretion in vitamin D deficient rats, but in humans the involvement of calcium and vitamin D in parotid secretion is unknown.[1] Combination of calcium and vitamin D3 is used as supplements in elderly, pregnant, lactating and postmenopausal women. Oyster shell is one of the commonly used sources of calcium. Indian Council of Medical Research recommends 600 mg calcium and 400 IU of vitamin D3 per day.[2] In view of the widespread use of this combination, we would like to report that calcium obtained from oyster shell and vitamin D3 may result in parotid swelling in susceptible individuals.

Access this article online	
Quick Response Code:	Website: www.jpharmacol.com
	DOI: 10.4103/0976-500X.142446

CASE REPORT

This was a case report of a 59-year-old patient who presented with right parotid enlargement after two doses of oyster shell calcium 500 mg and vitamin D3 250 IU in fixed dose combination. Following parotid enlargement, the patient stopped the drug

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herself which was followed by regression of the swelling within a day. Later, she restarted the drug which resulted in reappearance of enlargement of same parotid gland. She consulted a physician and was advised to stop the drug with assurance of no need for treatment. Subsequently she was also referred to adverse drug reaction (ADR) monitoring center, where ADR was documented and analyzed. She recovered completely in 2 days. There was no history of any other concomitant drugs and she had no history of diabetes, rheumatoid arthritis, malignancy and thyroid disorder. She did not have history of insect bite, exposure to allergens or infections. Earlier she had history of intake of calcium not obtained from oyster shell with no reaction.

ADR was assessed using World Health Organization (WHO) causality assessment and Naranjo's scales. As per WHO causality assessment scale, the ADR was classified as "certain" since it showed temporal association with positive de-challenge and re-challenge tests.[3] This reaction was analyzed as per Naranjo's algorithm with a score of 7 and was classified as probable.[4] According to Hartwig's severity scale the reaction was rated as mild.[5]

DISCUSSION

Calcium is essential for secretion of water and electrolyte from parotid, further; it is shown to be vitamin D dependent.[6] Common adverse effects reported with overdose of calcium are confusion, constipation, abdominal pain, muscle twitching.[7] Recently, there is concern of myocardial infarction risk with use of calcium supplements with or without vitamin D.[8,9] Nevertheless, it is suggested to supplement calcium in more frequent and lower doses to prevent age related secondary hyperparathyroidism and osteoporotic fractures.[10]

There is a report of bilateral submandibular salivary stones formation in a child which was attributed to high dietary intake of calcium.[11] However, in our case hypercalcemia would be least likely. Further, there was no evidence of stone formation but the parotid enlargement occurred within 2 days of starting the drug.

Drug induced parotid enlargement is less common and is reported with drugs such as clonazepam, clozapine, butazones, bretylium, asparaginase, methyldopa, iodide preparations and terbinafine.[12,13] Further, hypersensitivity reactions associated with xerostomia following oysters intake, mercury and lead poisoning would also lead to parotid swelling.[14] Ross *et al*. has demonstrated that naturally derived calcium supplements including oyster shell contains significant amount of lead.[15] Thus, it could be hypothesized that hypersensitivity due to oyster or lead content of these supplements might have contributed for parotid swelling.

Vitamin D receptors have been demonstrated in rat parotid gland, but the role of vitamin D3 on parotid secretion is unknown.[16] However, the patient had no history of reaction though she had previously taken vitamin D3 with calcium carbonate which was not from oyster shell. Hence, we ruled out vitamin D3 in this reaction and suspected oyster shell calcium as the culprit.

Given that calcium is widely used as supplementation in elderly women as part of prevention of osteoporosis, this reaction is of significance. Our case is an example of a mild but rare adverse effect of oyster shell calcium carbonate which is widely used.

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How to cite this article: Palaniappan M, Selvarajan S, Srinivasamurthy S, Chandrasekaran A. Oyster shell calcium induced parotid swelling. J Pharmacol Pharmacother 2014;5:256-7.

Source of Support: Nil, **Conflict of Interest:** None declared.