

Temporomandibular Intra-Articular Steroid Injection: Its Impact on Relieving Otaglia

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Abstract

Background: Temporomandibular joint disorder (TMD) is one of the most common non otological causes of otaglia. Treatment options vary from noninvasive options, such as non-steroidal anti-inflammatory drugs (NSAID) and physiotherapy to more invasive options of treatment such as intra-joint injections with corticosteroids and surgery. The aim of this study is to highlight the impact of the intra-articular steroid injection in TMJ on the otaglia not only the pain over the joint region.

Methods: This study is a case series study that has been conducted on 12 patients (10 females and 2 males) aging from 23 to 47 years old with complaint of pain at area of temporomandibular joint and temple with prominent otaglia. Each patient has been asked to put a grade for otaglia from 0 to 2 before and after injection (0: no pain - 1: mild pain - 2: sever pain).

Results: Ten cases showed complete relief of otaglia either after one or two injections. Two cases showed persistent otaglia after 3 attempts of injection.

Conclusion: Temporomandibular intra articular steroid injection is a minor procedure that could be carried out safely at outpatient clinics and an effective option for relieving otaglia secondary to temporomandibular joint disorder (TMD).

Keywords: Intra-articular, Otaglia, Steroid injection, Temporomandibular joint, TMJ

Abbreviations

TMD: Temporomandibular disorder
TMJ: Temporomandibular joint

Background

Aetiology of otaglia has been classified into otological and non otological causes, non otological causes like tonsillitis, dental cares, cervical spines pathologies and temporomandibular joint disorder (TMD) which is one of the most common non otological causes of otaglia [1]. TMD symptoms are trismus and pain over the temporomandibular joint (TMJ) region, which can refer to any part of the head specially the ear [2]. Many theories have explained the referring of pain between TMJ and the ear [3]. The most accepted one is that the mandible and ossicles have the same embryological origin from Meckel's cartilage and the same innervation [4].

The treatment options vary from noninvasive options, such as non-steroidal anti-inflammatory drugs (NSAID) and physiotherapy to more invasive options of treatment such as intra-joint injection with steroids and surgery [5]. Local injection of steroids in the temporomandibular joint has been reported to relief pain over the

joint secondary to arthritis [6].

The aim of this study is to highlight the impact of the intra-articular steroid injection in TMJ on the otaglia not only the pain over the joint region.

Methods

A case series study that has been conducted on 12 patients (10 females and 2 males) aging from 23 to 47 years old. Data for this study have been collected from patients attending department of Otolaryngology in (Cairo University) during the period from September 2015 to September 2017. Choosing these cases has been depended on 2 issues, the first is the subjective symptom of pain at area of temporomandibular joint and temple with prominent otaglia either with or without trismus either unilateral or bilateral, the second is objective sign of tenderness on temporomandibular joint area. Study has excluded patients of parapharyngeal suppurations or tumors that cause trismus, patient with clear other causes of referred otaglia ie: dental or cervical spine disease and patients who were uncooperative or refused local injection. Also patients with dislocated TMJ were excluded from this study.

Each patient has been asked to put a grade for otalgia from 0 to 2 before and post injection (0: no pain - 1: mild pain - 2: sever pain).
Steps of Injection:

1. Disinfection of the surface skin over TMJ by a piece of cotton impregnated with ethyl alcohol 70%
2. Application of topical anesthetic cream (lidocaine 2.5% + prilocaine 2.5%) for 10 minutes before injection
3. Asking the patient to open his/her mouth
4. Steroid that has been injected is dexamethasone 8mg, 1 ml each side, for 1-3 times injection with one week interval
5. Injection site was between tragus and mandibular condyle

Results

Ten cases showed complete relief of otalgia either after one or two injections. One of them was referred from dental department already on TMJ disorder device for 3 months prior to injection with

persistent prominent otalgia.

Two cases showed persistent otalgia after 3 attempts of injection, one of both was still complaining of the same grade of pain as pre injection and was diagnosed as osteo-degenerative changes in the mandibular condylar process by X-ray and referred to maxillo-facial surgery department for further management, the other case shifted treatment on cyanocobalamin tablets twice daily and carbamazepine tablets 200mg twice daily, both for 2 weeks and has showed complete relief of otalgia.

Follow up period was ranged from 2 to 8 weeks, one case developed recurrence of the TMJ pain and otalgia unilaterally by one year after complete success of two attempts of injection and was retreated by single injection which was sufficient to relief pain (Table 1).

Table 1: Details of the cases were included in this study

Case number	Sex	Age in years	Side	Otalgia grade before injection	Otalgia grade after injection			Follow up period	Notes
					1 st	2 nd	3 rd		
1	F	41	Bilateral	2	0	-	-	1 month	-
2	F	25	Bilateral	2	1	1	0	1 month	Associated with TMJ disorder device
3	F	32	Bilateral	2	1	1	0	1 month	-
4	M	43	Bilateral	2	0	-	-	3 weeks	-
5	F	30	Bilateral	2	2	1	0	1 month	-
6	M	38	Bilateral	2	2	2	2	1 month	X-ray showed condylar degeneration, referred to Maxillofacial department
7	F	29	Bilateral	1	1	0	-	3 weeks	-
8	F	27	Bilateral	2	0	-	-	2 weeks	-
9	F	23	Bilateral	2	0	-	-	2 weeks	-
10	F	47	Bilateral	1	0	-	-	2 weeks	-
11	F	32	Bilateral	1	1	1	1	2 months	Treatment continued on vitamin B12 + Carbamazepine
12	F	36	Bilateral	2	2	2	0	1 month	Recurrence after 1 year and retreated by the same technique

TMJ: Temporomandibular Joint

Discussion

Temporomandibular joint disorder lies in the second place of the non otological causes of otalgia after cervical spine diseases [7,8]. Pathophysiology of this otalgia is due to the same sensory innervations from the auriculotemporal nerve (5th cranial nerve) [9,10]. Otalgia is caused by both the TMJ arthritis and by associated spasm of muscles of mastication. These patients usually feel pain deeply in the ear and in front of the ear and exaggerated by mastication [11].

Many studies have noted that the TMJ disorders are more common in females [12]. A study has reported 16 females of total 17 cases, the same is here in the present study that have reported 10 females of total 12 cases [13].

The present study hasn't reported any complications with the twelve patients. Most researchers have preferred using hyaluronic acid to corticosteroids for intra-articular injection as the hyaluronic acid is one of the natural component of the synovial fluid and due to the reported complications of corticosteroid injections in the knee joint, which include flaring up of arthritis, damage and degeneration of tendons and cartilage [14]. These complications are very rare in the TMJ [15]. A study by Samiee, et al. 2011, only one patient developed temporary facial palsy after injection of corticosteroids and lidocaine in the TMJ [13].

Hyaluronic acid and corticosteroids had the same onset and duration of improvement of symptoms, but the corticosteroid is more affordable and cheaper than hyaluronic acid [13].

Many studies have focused on pain relief at the site of the joint or better mouth opening other studies have focused on tinnitus, but the present study has focused on relieving otalgia as a primary outcome parameter [13-16]. Many studies have used triamcinolone acetonide for TMJ intra-articular injection on the other hand the present study has used dexamethasone [13,17].

Conclusion

TMJ intra articular steroid injection is a minor procedure that could be carried out safely at outpatient clinics and an effective option for relieving otalgia secondary to temporomandibular joint disorder (TMD).

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