

Metastatic papillary thyroid carcinoma of the mandible: Case report and literature review

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Abstract

The oral cavity is not a usual site for metastasis including about one percent of all oral tumors. Metastatic papillary thyroid carcinoma (PTC) is uncommon and usually occurs in regional lymph nodes of neck, so mandibular metastasis is a rare event. We present a case with swelling in the right mandible that has been diagnosed metastatic tumor of PTC. The clinical features, radiographic aspect and treatment plan are discussed. Furthermore, a thorough review of literature revealed 77 published cases of metastatic thyroid carcinoma to the oral cavity with their summarized features.

Keywords: Mandible, metastasis, papillary thyroid carcinoma

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Received: 13.05.2018, **Accepted:** 27.11.2018

INTRODUCTION

Malignancy of the thyroid gland is the most common in the endocrine system and has been identified into different subtypes depending on the cells or growth pattern.^[1,2] Papillary thyroid carcinoma (PTC), a well-differentiated tumor, is the most common histological subtype including 80%–90% of all thyroid cancer.^[3,4]

It is generally an asymptomatic, slow-growing nodule with desirable prognosis.^[2,4] PTC almost has a lymphatic spreading to regional lymph nodes. Distant metastasis with bloodstream dissemination are less frequent^[2,3] and they have poor prognosis and decreased survival rate.^[4]

Distant metastasis more frequently involves lungs and bones such as sternum, vertebrae, pelvis, ribs and femur.^[2,3,5] Mandibular metastasis is rare, and it counts about 1% of

oral malignancies.^[1,6] This tumor almost presents in the premolar-molar and angle-ramus region of the mandible.^[3,7]

We present a rare case with the mandibular metastasis from PTC, and a systematic review of the literature is performed.

CASE REPORT

A 68-year-old man was referred to the cancer institute of Tehran University of medical sciences with a history of painless swelling in the right side of the mandible [Figure 1] and a medical history of thyroidectomy 3 years ago because of PTC. After that, he received suppression therapy with levothyroxine. One year later, follow-up in the whole body scan with I-131 showed no evidence of residual thyroid tissue in thyroid bed and negative for local and distant metastasis. On the second year after thyroidectomy, he complained of swelling in the mandible then admitted. Laboratory tests were

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How to cite this article: Khoozestani NK, Mosavat F, Shirkhoda M, Sedaghati A. Metastatic papillary thyroid carcinoma of the mandible: Case report and literature review. *J Oral Maxillofac Pathol* 2019;23:S97-105.

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10.4103/jomfp.JOMFP_106_18

normal except elevated thyroid-stimulating hormone level that showed subclinical hypothyroid. Abdominal-computed tomography (CT) scan with and without contrast was normal although lung CT scan shows sparse hypodense nodules in bilateral hemithorax that suspect metastasis. Neck sonography revealed disruption of the mandibular cortex and a hypoechoic lesion in the mandibular bone that posed to bony mass with a pathological fracture. Furthermore, hyperechoic of related soft tissue and multiple lymph nodes was observed. A hypoechoic region closed to the cortex probability proposed hematoma. For the second time, the whole body scan with TC-99 shows hyperactive hotspots in the right side of the mandible and degenerative changes in the body joints [Figure 2]. No other markable abnormality in other skeletal bones were reported. Panoramic radiography shows an invasive ill-defined radiolucent lesion in the body, angle and ascending ramus of the right side of the mandible. The destruction of the lower cortex and pathological fracture of medial border of ramus was also observed. The cortical border of the inferior alveolar canal was not detected [Figure 3]. CT scan without contrast from maxillofacial region shows an expansile lesion that measured about 50 mm × 32 mm which laterally extends and destroys the mandibular body and causes thinning buccal plate, medially extension to the mylohyoid muscle is seen. The lesion also involved the mandibular canal and mental foramen [Figure 4a-d]. Perforation of the lingual plate and inferior border of the mandible were also observed [Figure 5]. Hematologic malignancies or minor salivary gland tumors with same features can be suggested. A thick cortex 15 mm × 13 mm level I LAPD is observed on the right side.

Then, the incisional biopsy was performed. Microscopic examination shows bone trabeculae infiltrated by a malignant epithelial neoplasm composed of papillary structures which are characterized by distinctive nuclear features. The papillae are formed by fibrovascular cores, which are covered by cuboidal to columnar neoplastic epithelial cells. The crowded cells show round-to-ovoid nuclei with frequent indentations and typical clefted or grooved appearance. Furthermore, some nuclei have an empty or clear appearance. The cell cytoplasm is typically smooth and eosinophilic. The fibrous stroma shows lymphoplasmacytic infiltration. Perineural and lymphovascular invasion are identified [Figure 6a-d]. Due to the history of malignancy of thyroid and microscopic appearance, the diagnosis was metastatic carcinoma. The mentioned diagnosis was confirmed immunohistochemically by thyroid transcription factor 1 and thyroglobulin markers [Figure 7a and b].



Figure 1: Clinical view of the patient showing expansion in the right side of the mandible



Figure 2: Bone scan shows hot spot at the right side of the mandible



Figure 3: Panoramic view reveals an ill-defined radiolucency with interruption integrity of the right side mandibular cortex

The patient undergoes hemimandibulectomy and the right neck dissection level I-V. The mandible was reconstructed with a costochondral rib graft [Figure 8]. The pathology showed one reactive lymph node in level I. It was reported metastatic papillary thyroid carcinoma.

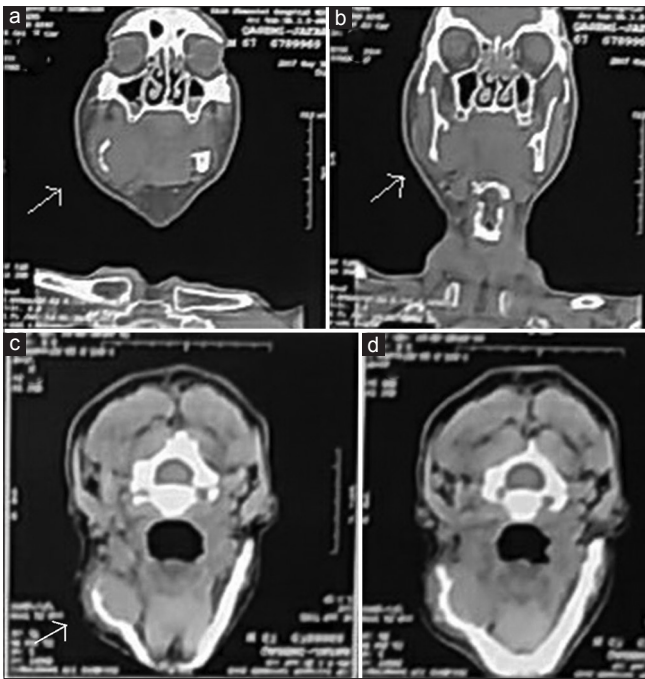


Figure 4: Computed tomography without contrast. Oblique coronal view shows perforation of inferior and lingual mandibular border (a and b). Axial view shows buccal and lingual cortex expansion (c and d)

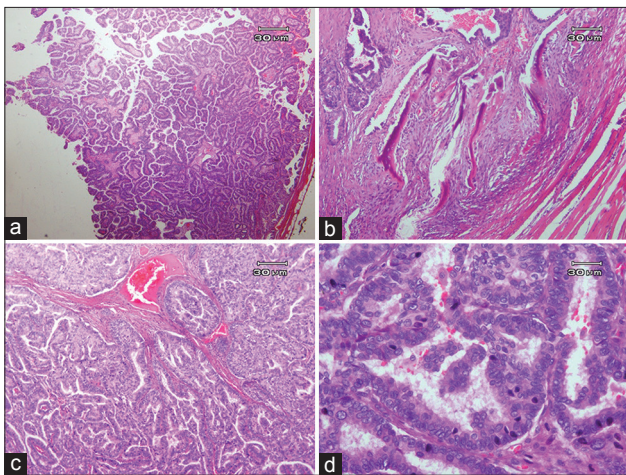


Figure 6: Microscopic examination reveals papillary thyroid carcinoma with multiple branching and true papillae (a). Papillary thyroid carcinoma with bone trabeculae, filtration and destruction (b). Branching papillae lined by cuboidal cells with overlapping nuclei and finely dispersed ground glass chromatin "Orphan Annie nuclei" (c). Cuboidal cells with nuclear longitudinal grooves micronucleoli and eosinophilic intranuclear inclusions (d)

DISCUSSION

Metastatic tumor to the oral region is a rare event that comprises 1% of all oral malignancies.^[3,8] The primary malignancy that is giving more frequently metastasis to oral cavity differed between genders. These are breast cancer for a woman and lung cancer for men.^[9-11]



Figure 5: Three-dimensional reformatted computed tomography shows expansile destructive lesion

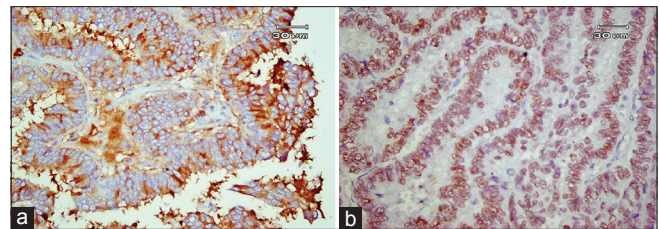


Figure 7: Thyroglobulin immunostaining reveals thyroid differentiation of the tumor cells (a). Thyroid transcription factor immunostaining shows strong nuclear expression in all cancer cells (b)

Other common primary sites are colon, kidney, prostate, bone, liver, adrenal gland and female's genital organs.^[3,9,12] Metastatic thyroid carcinoma to oral tissue is not very frequent. Metastatic PTC tumors to jaw include 4%–6.5% in all metastatic tumors to the jaw.^[3,9]

Most metastasis bones from PTC are being sternum, vertebrae, skull, pelvis, ribs and femur.^[5,10,13]

A review literature of available published cases for metastatic thyroid carcinoma to oral tissues revealed 77 cases with their summarized features in Table 1.

Patients' age with thyroid cancer is usually from 25 to 65 years, and especially in younger patients, the tumor tends to grow very slowly.^[2] As regards, the mean age for well-differentiated thyroid cancer is 40 years for papillary type and 50 years for follicular type; so, it spends the time to metastasize to other regions.^[3] The metastatic tumors commonly occur in 5th to 7th decade of life.^[14,15]

In our review, based on available information, among 73 cases with a wide age range (13–87), the mean age of patients was 56.6 years. The mean age was 64.1 years for males and 54 years for females. Most patients (45 cases)

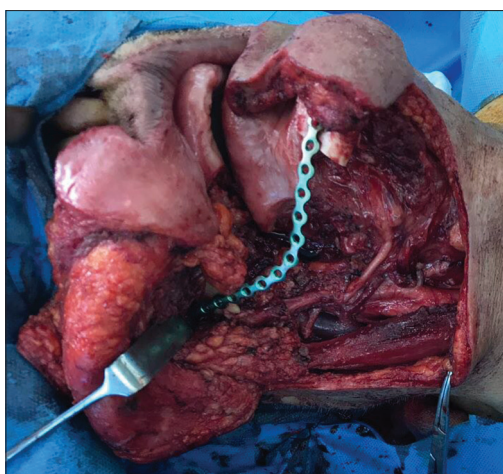


Figure 8: Reconstruction of segmental mandibulectomy

were in 6th decade (24 cases) and 7th decade (21 cases), only 6 cases were younger than 40 years.

In this review, among 74 patients, 57 cases (77%) were females and 17 cases (23%) were males. Female predilection can be attributed to the more incidence of thyroid cancer in women.^[16,17]

Distant metastasis from PTC is very rare because it usually remains intraglandular or metastasize to regional cervical lymph nodes through the lymphatic system although follicular thyroid carcinoma with hematogenous spread causes more frequent distant metastasis.^[1,18,19] Metastasis to the jaw bone develops through blood vessels, that is the most common route.^[14]

Table 1: Summarizes of published case reports with metastatic thyroid carcinoma to the oral cavity (77 cases)

Authors	Age	Gender	Location	Histological diagnosis	Time to metastasis	Treatment to metastasis	Other metastatic sites	Outcome (length of follow-up)
Meyer and Shklar, 1965 ^[3]	51	Female	Mandible	Adenocarcinoma	NA	NA	None	NA
Soumar <i>et al.</i> , 1970 ^[16]	54	Female	Mandible	NA	NA	NA	NA	NED (36 months)
McDaniel <i>et al.</i> , 1971 ^[3]	77	Female	Right mandible	Follicular thyroid Ca	First manifestation	Hemimandibulectomy and parotidectomy	None	NED (4 years)
	48	Female	Left mandible	Follicular thyroid Ca	First manifestation	NA	NA	NA
Al Ani 1973 ^[3]	60	Female	Right mandible	Follicular thyroid Ca	First manifestation	NA	NA	NA
Ripp <i>et al.</i> , 1977 ^[3]	61	Female	Right mandible	Thyroid Ca	First manifestation	Cobalt teletherapy	Widespread	DOD (1 year)
Draper <i>et al.</i> , 1979 ^[3]	NA	Female	Mandible	Follicular thyroid Ca	NA	Radiotherapy	skull	NA
Stypulkowska <i>et al.</i> , 1979 ^[16]	NA	NA	Mandible	Adenocarcinoma	1 year	symptomatic	NA	DOD (≤ 1 year)
	NA	NA	Mandible	Adenocarcinoma	First manifestation	symptomatic	NA	DOD (≤ 1 year)
Osguthorpe and Bratton, 1982 ^[3]	53	Male	Right mandible	Follicular thyroid Ca	First manifestation	Partial mandibulectomy	None	NED (3 years)
Nishimura <i>et al.</i> , 1982 ^[1]	74	Female	Right Mandible	Follicular thyroid Ca	First manifestation	Chemotherapy	Vertebra	Alive (4 months)
	51	Female	Left mandible	Papillary thyroid Ca (follicular variant)	First manifestation	Chemotherapy, radiotherapy	Ribs , Lung	Alive with disease (4.5 year)
Parichatikanond <i>et al.</i> , 1982 ^[3]	42	Female	Left mandible	Follicular thyroid Ca	First manifestation	Hemimandibulectomy	NA	NA
Tovi <i>et al.</i> , 1984 ^[3]	33	Male	Left mandible	Follicular thyroid Ca	First manifestation	Radioactive Iodine therapy	Vertebra, mediastinum Parietal bone, femur	Died of thyroid Crisis (17 days)
Markitziu <i>et al.</i> , 1986 ^[3]	69	Female	Left mandible and parotid	Papillary thyroid Ca (follicular variant)	First manifestation	Radiotherapy and chemotherapy	NA	NED (1.5 years)
Kahn and McCord 1989 ^[3]	82	Female	Anterior mandible	Follicular thyroid Ca	32 years	Radiotherapy, radioactive Iodine therapy, resection	Mediastinum, tibia, lungs, pelvis	Died, NED (1.5 years)
Whitaker <i>et al.</i> , 1993 ^[3]	87	Male	Dorsal tongue and lower lip	Follicular thyroid Ca	First manifestation	Surgical removal, Radioactive Iodine therapy	Lung	Alive with disease (4 months)
Hefer, 1998 ^[16]	58	Male	Maxilla	Follicular thyroid Ca	NA	Resection	NA	NED (2 years)

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Table 1: Contd...

Authors	Age	Gender	Location	Histological diagnosis	Time to metastasis	Treatment to metastasis	Other metastatic sites	Outcome (length of follow-up)
Vural and Hanna 1998 ^[3]	64	Female	Right Mandible infratemporal fossa	Follicular thyroid Ca	First manifestation	Radical resection, radioactive iodine therapy	Multiple skeletal	Alive (6 weeks)
Agarwal <i>et al.</i> , 1998 ^[3]	45	Female	Left mandible	Follicular thyroid Ca	First manifestation	Hemimandibulectomy	NA	Alive (2 weeks)
Erdag <i>et al.</i> , 1999 ^[3]	53	Female	Right mandible	Papillary thyroid Ca (follicular variant)	4 years	Radical Resection, Radioactive Iodine therapy	Vertebra, Humerus	Alive with disease (2.5 years)
Anil <i>et al.</i> , 1999 ^[3]	61	Female	Right Mandible	Follicular thyroid Ca	8 years	NA	NA	NA
Piatelli <i>et al.</i> , 2000 ^[3]	54	Female	Right Maxillary Gingiva	Medullary thyroid Ca	4 months	Surgical removal	Cervical lymph nodes	NED (4 years)
Thomas <i>et al.</i> , 2001 ^[13]	61	Female	Mandibular gingiva	Follicular thyroid Ca	First manifestation	Radio Iodine ablation	None	NED (5 years)
Bhansali <i>et al.</i> , 2003 ^[5]	60	Female	Mandible, maxilla	Papillary thyroid Ca (follicular variant)	NA	NA	Rib	NA
Colella <i>et al.</i> , 2003 ^[3]	50	Female	Right mandible	Papillary thyroid Ca	5 years	NA	NA	NA
Ostrosky <i>et al.</i> , 2003 ^[3]	72	Male	Anterior mandible	Follicular thyroid Ca	First manifestation	Resection	None	NA
Bonder <i>et al.</i> , 2006 ^[3]	65	Male	Right mandible	Hurtle cell thyroid Ca	NA	Supportive	Widespread	DOD (2 months)
Liu <i>et al.</i> , 2007 ^[24]	66	Male	Masticator space, mandible	Papillary thyroid Ca (follicular variant)	22 years	Radical Resection, radioactive iodine therapy	Scapula	NED (3 years)
Kaveri <i>et al.</i> , 2007 ^[14]	65	Male	Left mandible	Follicular thyroid Ca	First manifestation	NA	Ribs	NA
Tamiolakis <i>et al.</i> , 2007 ^[3]	69	Female	Mandible	Papillary thyroid Ca	NA	Inoperable	NA	DOD (1 month)
Antunes and Antunes 2008 ^[3]	13	Female	Mandible Maxilla	Thyroid Ca Papillary Adenocarcinoma	NA	Resection	NA	NA
Araki <i>et al.</i> , 2008 ^[16]	55	Female	Left mandible	Follicular thyroid Ca	NA	NA	NA	NA
Ismail <i>et al.</i> , 2009 ^[3]	70	Female	Left mandible	Follicular thyroid Ca	First manifestation	NA	Hilar lymph nodes	NA
Algahtani <i>et al.</i> , 2009 ^[3]	66	Female	Left mandible	Follicular thyroid Ca	First manifestation	Segmental mandibulectomy	Cervical lymph nodes	NA
Seoane <i>et al.</i> , 2009 ^[16]	58	Female	Tongue	Papillary thyroid Ca	NA	NA	NA	NA
Nishikawa <i>et al.</i> , 2010 ^[3]	69	Female	Mandible	Papillary thyroid Ca	NA	NA	NA	NA
	83	Female	Anterior mandible	Poorly differentiated thyroid Ca	2 years	None	Lung	DOD (1 year and 7 months)
Kumar <i>et al.</i> , 2010 ^[3]	58	Female	Left mandible	Follicular thyroid Ca	First manifestation	Segmental mandibulectomy	None	NED (2 years)
Yokoe <i>et al.</i> , 2010 ^[27]	71	Female	Mandible	Follicular thyroid Ca	First manifestation	Segmental mandibulectomy	NA	NED (48 months)
Chaturvedy <i>et al.</i> , 2010 ^[28]	68	Male	Upper lip	Follicular thyroid Ca	4 years	Surgical excision Radioactive Iodine therapy	None	NA
Daley and Darling 2011 ^[3]	57	Male	Anterior mandible gingiva	NA	NA	NA	NA	NA
Kim <i>et al.</i> , 2011 ^[18]	46	Female	Bilateral mandible	Follicular thyroid Ca	First manifestation	Hemimandibulectomy Radioactive Iodine therapy	Lumbar spine, Femur neck	NED (12 months)
Muttagi <i>et al.</i> , 2011 ^[15]	60	Male	Mandible	Papillary thyroid Ca (follicular variant)	NA	NA	NA	NA
	63	Female	Mandible	Papillary thyroid Ca (follicular variant)	NA	NA	NA	NA
	51	Female	Mandible	Papillary thyroid Ca (follicular variant)	NA	NA	NA	NA
	44	Female	Mandible	Papillary thyroid Ca	NA	NA	NA	NA
	35	Female	Mandible	Papillary thyroid Ca	NA	NA	NA	NA

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Table 1: Contd...

Authors	Age	Gender	Location	Histological diagnosis	Time to metastasis	Treatment to metastasis	Other metastatic sites	Outcome (length of follow-up)
Rohilla <i>et al.</i> , 2011 ^[24]	55	Female	Edentulous mandible	Follicular thyroid Ca	2 years	Radiotherapy	Skull, ileum, Pelvis, vertebrae lymph nodes	Alive (6 month)
Narain and Batra, 2011 ^[29]	62	Female	Right maxilla	Follicular thyroid Ca	15 years	NA		NA
Nikitakis <i>et al.</i> , 2011 ^[3]	63	Male	Right posterior Maxilla, maxillary sinus	Papillary thyroid Ca	2 years	Radiotherapy Chemotherapy	Sternum, ribs, left tibia	Alive with disease (2 years)
Slim <i>et al.</i> , 2012 ^[11]	67	Female	Maxilla (malar region)	Papillary thyroid Ca (follicular variant)	First manifestation	Radioactive iodine therapy	Facial region, lung, neck	NA
Bhadage <i>et al.</i> , 2012 ^[21]	40	Female	Left mandible	Follicular thyroid Ca	First manifestation	NA	Submandibular lymph nodes	NA
Shabestari <i>et al.</i> , 2012 ^[17]	21	Female	Anterior left maxilla	Medullary thyroid Ca	7 years	Chemotherapy	NA	NA
Pasupula <i>et al.</i> , 2012 ^[30]	40	Female	Left ramus of mandible	Follicular thyroid Ca	First manifestation	Excision	Rib	NA
Kotina <i>et al.</i> , 2013 ^[6]	55	Female	Left mandible	Follicular thyroid Ca	15 years	NA	NA	NA
Kumar <i>et al.</i> , 2013 ^[31]	31	Female	Right maxilla	Follicular thyroid Ca	First manifestation	Radioactive iodine therapy Palliative chemotherapy	Right leg	NED (7 years)
Vishveshwaraiha <i>et al.</i> , 2013 ^[26]	56	Female	Right mandible	Follicular thyroid Ca	NA	NA	None	NA
Pingel <i>et al.</i> , 2013 ^[16]	76	Male	Posterior mandible	Papillary thyroid Ca (tall cell variant)	6 years	Radiotherapy	Rib Left clavicle	DOD (11 months)
Vazifeh mostaan <i>et al.</i> , 2013 ^[32]	58	Female	Right mandible	Follicular thyroid Ca	12 years	Segmental mandibulectomy	None	NA
Das <i>et al.</i> , 2014 ^[22]	55	Female	Right mandible	Papillary thyroid Ca (follicular variant)	First manifestation	Segmental mandibulectomy Radioactive Iodine therapy	None	NED (2 years)
Lavanya <i>et al.</i> , 2014 ^[7]	76	Male	Left Mandible	Follicular thyroid Ca	First manifestation	NA	NA	NA
Siddique <i>et al.</i> , 2015 ^[8]	71	Male	Labial gingiva of lower right lateral incisor	Papillary thyroid Ca	8 weeks	Radioactive iodine therapy	Lymph nodes	NA
Kori <i>et al.</i> , 2015 ^[19]	50	Female	Left mandible	Follicular thyroid Ca	First manifestation	Segmental mandibulectomy Radioactive Iodine therapy	None	NED (1 years)
	40	Female	Left mandible ramus, maxilla	Follicular thyroid Ca	First manifestation	Radioactive iodine therapy	None	NA
Bingol <i>et al.</i> , 2015 ^[2]	33	Female	Right mandible	Papillary thyroid Ca (follicular variant)	First manifestation	Hemimandibulectomy	Pelvic, central nervous system	DOD (5 years)
Hartinie <i>et al.</i> , 2015 ^[33]	41	Female	Right mandible	Follicular thyroid Ca	First manifestation	Segmental mandibulectomy, Radiotherapy	Anterior mediastinal nodes	NED (6 months)
Fatahzadeh <i>et al.</i> , 2015 ^[34]	43	Female	Right Maxilla, Maxillary sinus	Papillary thyroid Ca (follicular variant)	NA	Palliative radiotherapy	Left leg, scalp Right shoulder, Bilateral hips	NA
Krishnamurthy <i>et al.</i> , 2016 ^[23]	52	Male	Left mandible	Follicular thyroid Ca	First manifestation	Hemimandibulectomy Radioactive iodine therapy	None	NED (14 months)
Cai <i>et al.</i> , 2016 ^[25]	59	Female	Ascending Ramos of mandible	Thyroid adenocarcinoma	NA	Segmental mandibulectomy	NA	Alive (27 months)
Arepen and Mohamad <i>et al.</i> , 2016 ^[11]	68	Female	Bilateral mandible	Papillary thyroid Ca (follicular variant)	4 years	Palliative radiotherapy	None	NA
Dholam <i>et al.</i> , 2017 ^[10]	58	Female	Left mandible	Papillary thyroid Ca (follicular variant)	First manifestation	Palliative radiotherapy	Sacral, lumbar	Alive (6 months)
Anajar <i>et al.</i> , 2017 ^[4]	52	Female	Mandible	Papillary thyroid Ca	First manifestation	Segmental mandibulectomy	None	NED (6 months)

Contd...

Table 1: Contd...

Authors	Age	Gender	Location	Histological diagnosis	Time to metastasis	Treatment to metastasis	Other metastatic sites	Outcome (length of follow-up)
Loureiro <i>et al.</i> , 2017 ^[12]	54	Female	Left mandible	Follicular thyroid Ca	First manifestation	None	NA	DOD
Varadarajan 2017 ^[9]	73	Female	Left mandible	Follicular thyroid Ca	First manifestation	Segmental mandibulectomy Radioactive iodine therapy	Tongue, soft tissue of neck	NED (18 months)
Present case, 2017	68	Male	Right mandible	Papillary thyroid Ca	3 years	Hemimandibulectomy	None	Alive (12 months)

NA: Not available, DOD: Died of disease, NED: No evidence of disease

The most frequent subtype of metastatic thyroid carcinoma is the follicular type (39 out of 75 with available data: 52%). Its more predilection can be attributed to the bloodstream dissemination.^[3,11] PTC along with follicular variant (19 cases) and tall cell variant (1 case) accounted for 25 cases (33%) including present reported case. Although 11 cases were reported with medullary thyroid carcinoma, hurtle cell carcinoma, poorly differentiated thyroid carcinoma and adenocarcinoma.

Hirshberg *et al.*^[20] reported that the first sign of distant undiscovered malignancy in 23% of cases was oral metastasis. Oral metastasis in one-third of patients may be the first manifestation of its primary tumor.^[20]

Mandible, maxilla and oral soft tissue are more affected sites by metastatic cancer with predilection for mandible and gingiva.^[4,7] Almost 41% of facial bones metastasis from thyroid cancer occurs in the mandible.^[9,21] Maxillary metastasis is rare and less than one-fifth of all jaw metastatic tumors.^[3]

Oral soft-tissue involvement is less frequent than the jaw bones.^[2,16] Ramus and angle of the mandible due to rich blood circulation in the medullary cavity are most locations to metastasis^[3,4,22] and in radiography has been shown with poorly defined osteolytic lesion with ragged border.^[1]

In review of cases with available data, oral metastasis was the first manifestation of thyroid cancer in 37 patients (66%). In 19 patients including the present case, there is a time to diagnosis metastasis after discover primary thyroid cancer. This time has widely ranged from 8 weeks to 32 years.

The most location of oral metastasis was the mandible (80%), including our case and only 10% was in the maxilla. Soft-tissue metastasis in gingiva, tongue, lower and upper lip were seen in 7 cases.

The common symptoms of metastatic tumor to jaws are pain, swelling, tooth mobility, premature loss of teeth, paresthesia, cervical lymphadenopathy and rarely pathologic fractures.^[11,17,23]

Because of rarity of oral metastasis, the first diagnosis can be squamous cell carcinoma, that is a most common malignant lesion in jaws with same clinical features.^[24] The presence of pain and chin paresthesia can be due to rapid progression of intraoral and extraoral expansion.^[9] A granulation-like mass in oral tissue and mucosa may appear and result in bleeding, infection, dysphagia and disturbance in mastication.^[9,16]

In the present case, painless swelling was a noticeable clinical sign and extra examination also showed pathologic fracture.

Oral metastasis is similar to an inflammatory and reactive conditions such as periapical lesions, periodontitis, osteomyelitis and pericoronitis.^[2,3]

The treatment modalities of oral metastasis from thyroid cancer have been varied from palliative to various combination management of surgical interventions, radioactive iodine ablation, radiotherapy, chemotherapy and hormone therapy.^[7,16,25]

For better survival, it has recommended total thyroidectomy (if not performed in the past) with surgical resection of metastatic tumor, followed radioactive iodine treatment or radiotherapy.^[3,4] In younger patients with small metastasis lesion, I 131 seems to be a more effective treatment.^[16]

The treatment decision depends on spreading metastatic lesion, symptoms and fracture risk.^[3,4] In widespread metastasis disease, usually palliative treatment has been carried out; on the other hand, for the solitary and accessible lesion, surgical intervention has been recommended.^[3,4]

Free fibular flap for mandible reconstruction is a gold standard.^[4] In the present case, thyroidectomy was performed 3 years earlier before, and then, hemimandibulectomy with radical neck dissection of the metastatic tumor was done.

The prognosis depends on the age at diagnosis of metastasis tumor and the number of involved bones^[4] although patient prognosis with distant metastasis of thyroid cancer is generally poor and the survival rate is 4 years on average

40% of patients after discovering metastatic lesion.^[3,25] Metastatic thyroid carcinoma may be present adjacent to facial structures such as orbit, paranasal sinus and salivary gland.^[3,9]

The available follow-up information in our review revealed in 40 out of 77 cases, length of follow-up varied from 17 days to 7 years. About 25 patients were reported as alive (14 of them being free of disease) and 15 patients died (13 of them due to disease).

The review shows in 32 out of 48 cases, oral metastasis was accompanied by metastasis in other sites such as femur, tibia, lung, ribs, lymph nodes, skull and pelvis, that they are usually skeletal.

CONCLUSION

Oral metastasis from PTC is a very rare event that usually accompanies with a poor prognosis. Mandible metastasis revealed various symptoms and can be similar to the other conditions if it is the first manifestation. Therefore, thorough diagnostic workup for detection of the primary and metastatic sites is necessary. A proper evaluation can help to decide the best treatment. Surgical-based treatment with reconstruction can improve surgical outcome.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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