

## Giant Cell Granuloma of The Mandible: Ultrasonography Findings (Case Report)

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Giant cell granuloma (GCG) is an uncommon, benign, and proliferative lesion whose etiology is not defined. Especially affects the jaws, located in the mandible and maxilla. Usually appears in patients younger than 30 years. The radiological features of the GCG have not been clearly defined, and conflicting descriptions appear in various textbooks and articles. In this study we present ultrasonography (US) findings of an 11-year-old male with gingival granular cell tumor with intraoral location also to the best of our knowledge, no detail about US findings in medical literature.

**Key Words:** Giant cell granuloma, mandible, doppler ultrasonography, ultrasonography.

### Mandibulanın Dev Hücreli Granulomu: Ultrasonografi Bulguları (Olgu Sunumu)

Dev hücreli granülom etyolojisi bilinmeyen nadir, benign, proliferatif lezyondur. Özellikle mandibula ve maksillada yerleşir. Genellikle 30 yaş altı görülür. Radyolojik görüntü özellikleri hakkında farklı kaynaklarda çelişkili bilgiler olup net bir tanımlama yoktur. Biz bu yazıda bilgilerimiz dahilinde US bulguları hakkında yeterli bilgi bulunmayan, 11 yaşında erkek olguda görülen, mandibula yerleşimli dev hücreli granülomun ultrasonografi bulgularını sunduk.

**Anahtar Kelimeler:** Dev hücreli granülom, mandibula, doppler ultrasonografi, ultrasonografi.

### Introduction

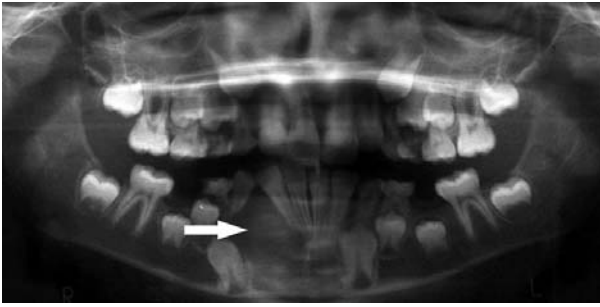
Giant cell granuloma is a reactive non-neoplastic lesion that accounts for less than 7 % of all benign lesions of the jaws (1). It was determined 89 % of GCG occurred prior to the age of 40. Seventy-eight percent of the cases were females. In addition, it was observed that these lesions occurred primarily in the mandible mostly anterior to the molar region. It was determined most of the lesions were multilocular (2). The clinical behavior of GCG ranges from an indolent slow growing a symptomatic mass to an aggressive lesion that causes pain, root resorption, and a tendency to recur after excision (3). The radiological features of the GCG have not been clearly defined, and conflicting descriptions appear in various textbooks and articles.

We present ultrasonography (US) and Doppler US findings of granular cell tumor on the mandible also to the best of our knowledge; no one reported US images before in medical literature.

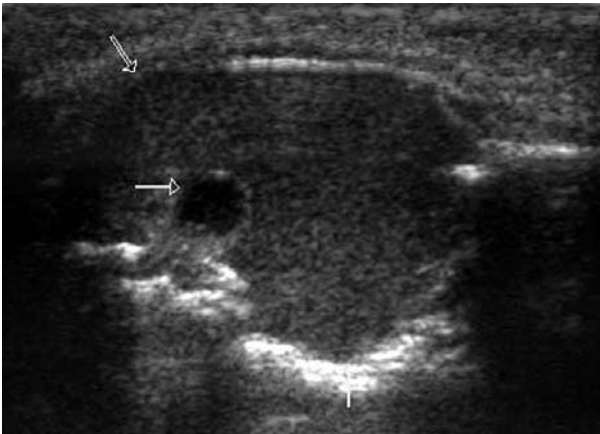
### Case report

An 11-year-old male patient admitted to our hospital with a slowly growing non-painful swelling of the right mandible for two months. The medical history was unremarkable and laboratory data on admission were within normal limits. Oral examination revealed swelling of the right mandible extending from the middle right body to the area near the angle of mandible. The lesion measured 2x1,5 cm at the largest diameter. The panoramic radiography revealed a radiolucent lesion (Figure 1). Right mandible area US images demonstrated that, heterogeneous hypo echoic, solid lesion with small anechoic area in laterally and localized from the mandible right first premolar posterior to the second molar. The mass lesion was smooth-lobulated edged (Figure 2). Doppler US showed venous and arterial flow pattern in the mass (Figure 3 a,b).

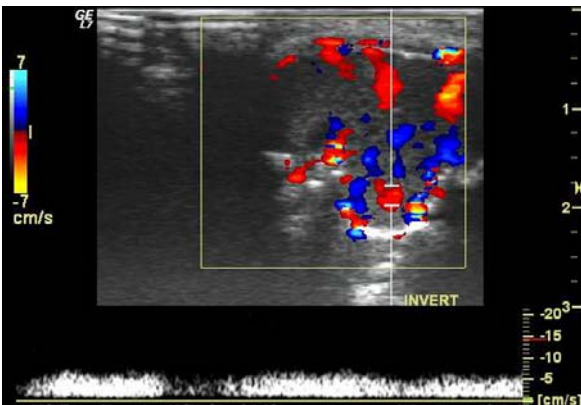
Total resection was performed to mass lesion. Pathology report was compatible with giant cell granuloma.



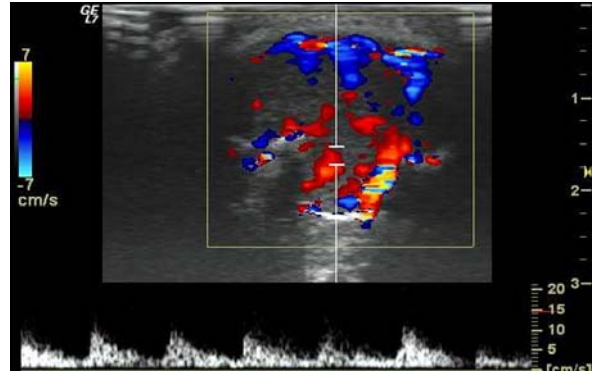
**Figure 1.** The panoramic radiography revealed a radiolucent lesion causing tooth displacement in the mandible (arrow).



**Figure 2.** Right mandible area gray scale US images showed that, heterogeneous hypo echoic, smooth-lobulated edged, solid lesion with small anechoic area in laterally (arrows).



**Figure 3 a.** Doppler US showed venous and arterial



**Figure 3 b.** Doppler US showed venous flow pattern in the mass.

**Discussion**

Giant cell granuloma is a relatively uncommon benign tumor of the oral cavity. Approximately 70 % arise in the mandible. Lesions are more common in the anterior portion of the jaw, and mandibles lesions frequently cross the midline (4).

The clinical behavior of GCG ranges from a slowly growing a symptomatic swelling to an aggressive lesion that manifests with pain, local destruction of bone, root resorption, or displacement of teeth. Aggressive subtypes of GCG have a tendency to recur after excision (5). The histological features of GCG have been extensively discussed (6) and it is defined by the World Health Organization as an intra osseous lesion consisting of cellular fibrous tissue that contains multiple foci of hemorrhage, aggregations of multinucleated giant cells, occasionally, trabeculae of woven bone (7).

A number of conditions can present with lesions that histological are indistinguishable from the GCG of bone, including brown tumors of hyperparathyroidism, cherubism, and, less commonly, a number of inherited syndromes including Noonan syndrome, neurofibromatosis type-1. Brown tumors of hyperparathyroidism are osteolytic lesions of bone that result from excessive parathyroid hormone secretion. Radiographic findings are also characteristic. Besides multiple lytic lesions of bone, when these occur intraorally there is a loss of the lamina dura adjacent to the roots of the teeth and an altered trabecular pattern in the tooth-bearing areas of the jaws. Multiquadrant radiolucent lesions of the jaws characterize cherubism, an autosomal dominantly inherited condition with variable expressivity. Dental findings include marked displacement of developing second and third molars as well as premature exfoliation of primary teeth. Marked cervical lymphadenopathy is common.

The radiological features of the GCG have not been clearly defined, and conflicting descriptions appear in various textbooks and articles (8). In panoramic radiography, the lesion may appear as a unilocular or multilocular radiolucency, with well-defined or ill-defined margins and varying degrees of expansion of the cortical plates. US may have information about the size or shape of the lesion, and also venous and arterial blood flow pattern in the mass. But anyway it is important to remember that the radiological appearance of the lesion is not pathognomonic and may be confused with that of

many other lesions of the jaws (9). GCG of the jaws, especially smaller lesions, are commonly treated by surgical curettage. Aggressive lesions are occasionally treated by en bloc surgical resection.

In conclusion GCC clinically results in some difficulties in differential diagnosis, US may have information about the size or shape of the lesion, and also venous and arterial blood flow pattern in the mass so US examination may be a suitable diagnostic approach. Anyway confident diagnosis can be performed with histopathological examination.

## References

1. Sezer B, Koyuncu B, Gomel M, Gunbay T. Intralesional corticosteroid injection for central giant cell granuloma: a case report and review of the literature. *Turk J. Pediatr* 2005; 47: 75-81.
2. Gungormus M, Akgul HM. Central giant cell granuloma of the jaws: a clinical and radiologic study. *J Contemp Dent Pract* 2003; 15: 87-97.
3. Ficarra G, Sapp P, Eversole L. Multiple peripheral odontogenic fibroma, world health organization type and central giant cell granuloma. *J Oral Maxillofac Surg* 1993; 51: 325-328.
4. Neville BW, Damm D, Allen CM, Bouquot JE. *Oral and Maxiofacial Pathology* (2nd ed). Philadelphia: WB Saunders Company, 2003.
5. Chuong R, Kaban LB, Kozakewich H, et al. Central giant cell lesions of the jaws: A clinicopathologic study. *J Oral Maxillofac Surg* 1986; 44: 708.
6. Stern M, Eisenbud L. Management of giant cell lesions of the jaws. *Oral Maxillofac Clin North Am* 1991; 3: 165.
7. Kramer IRH, Pindborg JJ, Shear M. *Histological Typing of Odontogenic Tumors* (2nd ed). Berlin: Springer-Verlag, 1991.
8. Wood NK, Goaz PW. *Differential Diagnosis of Oral Lesions* (4 ed). Mosby-Year Book, 1991, pp 393.
9. Shafer WG, Hine MK, Levy BM. *A Textbook of Oral Pathology* (4 ed). Philadelphia: PA Saunders, 1983, 146.