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DENTAL TRAUMATOLOGY

Case Report

Bifid mandibular condyle: a case report

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Abstract – A case of left bifid mandibular condyle (BMC) is reported in a 36-year-old female. The patient had a history of trauma in childhood. From the radiological examination, the left condyle was seen to have two anterioposteriorly situated heads. BMC is an extremely rare condition, where the condyle is duplicated or lobulated. The literature on BMC is reviewed, and possible cause of trauma and consequences of the anomaly are discussed.

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The bifid mandibular condyle (BMC) is a rare anomaly. It was first discussed by Hrdlicka, (1) and 20 skeletal specimens collected from different parts of the world were described. Lysell & Oberg (2) reported a case of a 21-year-old female who presented pain in the right temporomandibular joint (TMJ) and showed BMC on the right side with radiographic examination. Farmand (3) in 1981 reported a 45-year-old patient with left BMC. Forman & Smith (4) in 1984 reported two cases of unilateral BMC. Thomason & Yusuf (5) in 1986 presented two cases of BMC after remodeling of traumatic condyle fracture. Balciunas (6) in 1986 presented a 67-year-old edentulous woman with duplication of left condyle who was asymptomatic and had no trauma history. Quayle & Adams (7) in 1986 reported a case of BMC in a 15-year-old girl presenting with pain clicking and muscle splinting that was treated with condylectomy. Gundlach et al. (8) presented four patients and a skeletal specimen. Zohar & Laurian (9) in 1987 reported a case of unilateral BMC with polythelia (supernumerary nipples), polydactlyly (supernumerary rudimentary postaxial sixth fingers), and clinodactyly. McCormick et al. (10) reported three living cases.

In recent years, there have been a sudden increase in the number of cases reported. This may be attributed to the widespread use of the radiographic methods (11–21).

The morphology of the BMC may range from grooving to discrete condylar heads, with the orientation running sagittally or coronally. Evidence suggests that the etiology for this malformation is either traumatic or developmental.

Case report

A 36-year-old female patient was referred to the Oral Surgery Department with a complaint of facial pain on the left side. She complained of left TMJ clicking accompanied by moderate pain while chewing. No abnormal masses were found on palpation; an opening click on the left side was evident. Physical examination revealed maximum interincisal opening of 52 mm, with lateral deflection of 8 mm toward the left side. There was also a normal range of left lateral movement (7 mm) but a slightly restricted right lateral movement (5 mm) and a restricted protrusive movement (2 mm) without pain. There was a detectable facial asymmetry at the face. Speech and eating were unhindered, but mostly the left side was used in chewing. Also, she had no systemic disease. She had a history of trauma at the age of 8 years; her mother and the patient recalled that she had a traffic accident and injured her left scapula and face.

The occlusal examination revealed a complete natural dentition, with a posterior cross-bite on the right side and end-to-end occlusion on the left posterior teeth. Bilateral masseter muscles and left temporalis muscle were tender to palpation. Diagnosis was myofascial pain of temporal and masseter muscles.

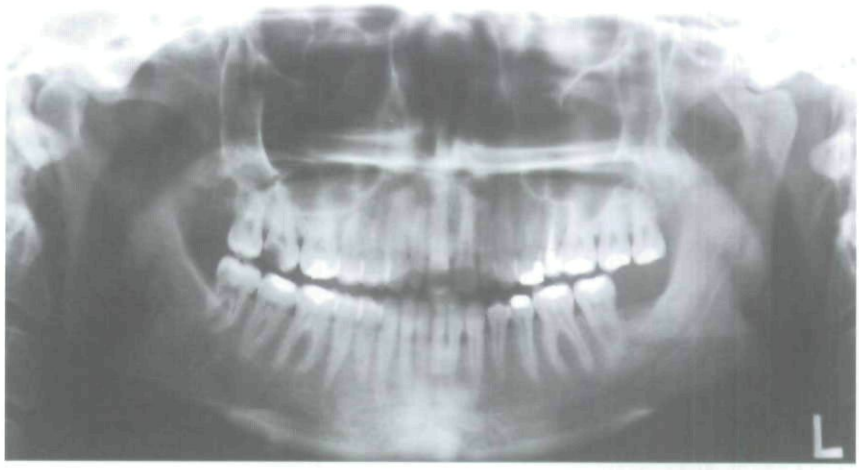

Fig. 1. Panaromic radiograph showing bifid mandibular condyle on the left side.

At initial consultation, an ortopantomograph was taken to exclude possible bony pathology. This radiograph clearly showed asymmetry between the condyles and bifid left codyle in the form of a distinct notch (Fig. 1). The left condyle showed a superior flattening and an anterior protuberance. The left condyle was smaller and abnormal in shape, with an anterior protuberance. To exclude the possible diagnosis of TMJ tumor, an axial computed tomographic scan was obtained, which revealed that the left mandibular condyle was lobulated, with a middle constriction, resulting in a spindle shape with a thinner central area (Fig. 2). The computed tomographic findings confirmed the degenerative changes that were observed on the plain tomograms. High-resolution CT scans of both condyles along with three-dimensional reconstructions were performed. These confirmed that the left condyle had a notch, where the posterior part as a functional condylar head as correctly positioned in the left mandibular fossa and an additional non-articulating condylar head projecting anteriormedially. The anterior articular surfaces

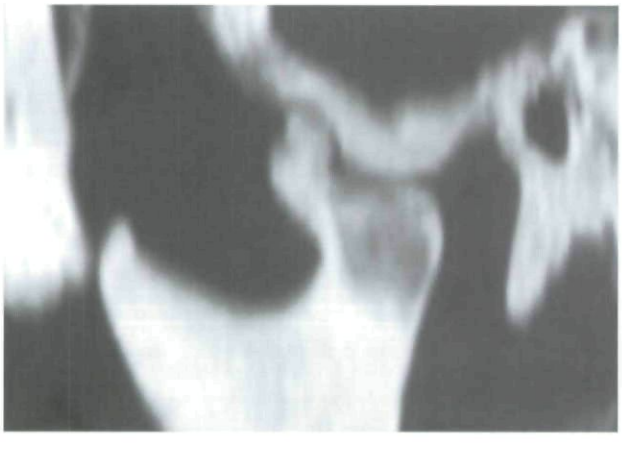

Fig. 2. Computed tomographic scan of the left condyle.

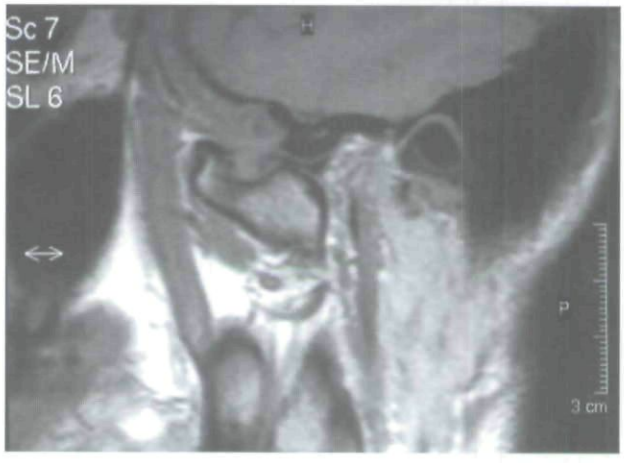

Fig. 3. Magnetic resonance imaging disc is in open-mouth position.

of both mandibular fossa were normal. Magnetic resonance imaging findings also revealed that surprisingly no pathology was detected in the disc of TMJ (Figs. 3 and 4).

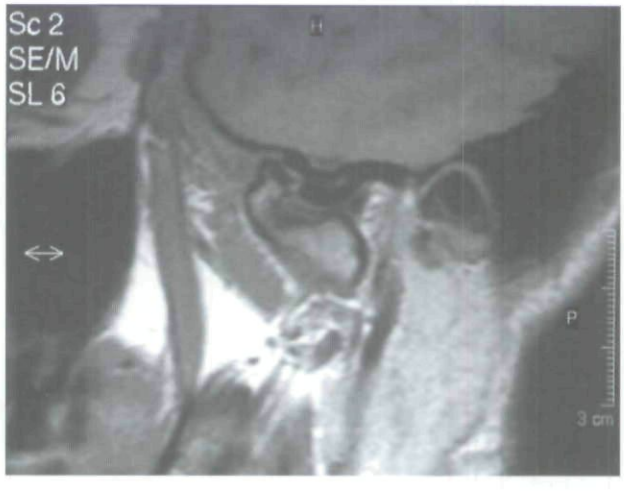

Fig. 4. Magnetic resonance imaging disc is in close-mouth position.

Discussion

Reports of BMC in living subjects are those with a history of trauma and those without. In comparative studies by Loh & Yeo (15) and by Antoniades et al. (16), the majority of cases in living subjects have had no history of trauma or complaints associated with the joints.

Poswillo (22) suggested that a BMC may develop after remodeling of a condylar head fracture. In patients with incomplete remodeling, a more or less defective resorption of the smaller fragment is demonstrated, which, in the case of a marked appositional growth, results in the typical Y-shaped (bifid) condyle. The cause of BMC is not fully understood yet. Hrdlicka (1) postulated that obstructed blood supply to the condyle during development caused division of the condyle. Blackwood (23) examined the developing condylar cartilage of the human fetus and found that it was partitioned by vascularized fibrous septa during the early phase. Persistence of these septa or rupture of blood vessels in the septa was believed to be the cause for bifidity to develop.

Paswillo (22), who studied the late effect of mandibular condylectomy on monkeys, postulated that changes of the position or form of the articulating disk can cause regeneration and growth of new condyle because interarticular septa is created across the space formerly occupied by the condylar head. It was demonstrated that, after condylar fracture, healing and remodeling processes can produce condyles that appear bifid. In our case, BMC may be the result of condylar remodeling following trauma.

Saggital split or vertical fracture of the head of the mandibular condyle and chip fractures of the medial part of the condylar head are uncommon injuries and easily missed on conventional radiographs (14, 24). These fractures have a high incidence of subsequent ankylosis, and so their early identification is very important. Also, saggital split fracture is an inadequately recognized cause of ankylosis in both adults and children.

There does not appear to be a predilection for any age group or either gender. Most of the patients with known age are over 20 years old. The study of the previous cases seems to suggest that the left condyle is affected twice as often as the right condyle, and most were unilateral cases (15). Most of the patients had no complaint related to TMJ, and most of the cases were incidental radiographic findings.

There is no explanation for the articular disk in previous studies. The finding of this BMC case was coincidental, and it had no dysfunction on the TMJ. There was a history of trauma to her left facial and clavicular region during childhood, but it is not known if there had been a condyle fracture. In this case, BMC may be the result of condylar remodeling following trauma.

It can be concluded that BMC is an extremely rare condition and there is no information about the real incidence of this malformation because of epidemiologic data.

References

1. Hrdlicka A. Lower jaw: double condyles. Am J Phys Anthropol 1941;28:75.
2. Lysell G, Oberg T. Unilateral doubling of mandibular condyle. Dentomaxillofac Radiol 1975;4:95–8.
3. Farmand M. Mandibular condylar head duplication. J Maxillofac Surg 1981;9:59–60.
4. Forman GH, Smith NJ. Bifid mandibular condyle. Oral Surg Oral Med Oral Pathol 1984;57:371–3.
5. Thomason JM, Yusuf H. Traumatically induced bifid mandibular condyle: a report of two cases. Br Dent J 1986; 161:291–3.
6. Balciunas BA. Bifid mandibular condyle. J Oral Maxillofac Surg 1986;44:324–5.
7. Quayle AA, Adams JE. Supplemental mandibular condyle. Br J Oral Maxillofac Surg 1986;24:349–51.
8. Gundlach KKH, Fuhrmann A, Beckmann-Vander Ven G. The double-headed mandibular condyle. Oral Surg Oral Med Oral Pathol 1987;64:249–53.
9. Zohar Y, Laurian N. Bifid condyle of the mandible with associated polythelia and manual anomalies. J Laryngol Otol 1987;101:1315–9.
10. McCormick SU, McCormick SA, Graves RW, Pifer RG. Bilateral bifid mandibular condyles: report of three cases. Oral Surg Oral Med Oral Pathol 1989;68:555–7.
11. Shaber EP. Bilateral bifid mandibular condyles. Cranio 1987;5:191–5.
12. Sahm G, Witt E. Long-term results after childhood condylar fractures: a computer-tomographic study. Eur J Orthod 1989;11:1541–60.
13. To EW. Mandibular ankylosis associated with a bifid condyle. J Craniomaxillofac Surg 1989;17:326–8.
14. To EW. Supero-lateral dislocation of sagittally split bifid mandibular condyle. Br J Oral Maxillofac Surg 1989;27:107–13.
15. Loh FC, Yeo JF. Bifid mandibular condyle. Oral Surg Oral Med Oral Pathol 1990;69:24–7.
16. Antoniades K, Karakasis D, Elephtheriades J. Bifid mandibular condyle resulting from a sagittal fracture of the condylar head. Br J Oral Maxillofac Surg 1993;31:124–6.
17. Fields R, Frederiksen NL. Facial trauma confusing the diagnosis of a bifid condyle. Dentomaxillofac Radiol 1993;22:216–7.
18. Wu XG, Hong M, Sun KH. Severe osteoarthrosis after fracture of the mandibular condyle: a clinical and histologic study of seven patients. J Oral Maxillofac Surg 1994;52:138–42.
19. Kahl B, Fischbach R, Gerlach KL. Temporomandibular joint morphology in children after treatment of condylar fractures with functional appliance therapy: a follow-up study us computed tomography. Dentomaxillofac Radiol 1995;24:37–45.
20. Cowan DF, Ferguson MM. Bifid mandibular condyle. Dentomaxillofac Radiol 1997;26:70–3.
21. Stefanou EP, Fanourakis IG, Vlastos K, Katerelou J. Bilateral bifid mandibular condyles: report of four cases. Dentomaxillofac Radiol 1998;27:186–8.
22. Poswillo DE. The late effects of mandibular condylectomy. Oral Surg Oral Med Oral Pathol 1972;33:500–12.
23. Blackwood H. The double-headed mandibular condyle. Am J Phys Anthropol 1957;15:1–8.
24. McDonnell DG, Masterson J, Barry HJ, Browne A. The use of two-dimensional (T reconstruction) to demonstrate a vertical fracture of the condylar head. Dentomaxillofacial Radiol 1990;19:34–6.