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Title

So-called “bad split” may not be “bad” when the split is on the buccal side:  
technical note

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## Introduction

After achieving a sagittal split ramus osteotomy performed for severe asymmetry or a severe occlusal transverse cant, the proximal and distal segments do not always align passively to one another. The most posterior aspect of one distal segment is rotated laterally, and an anterior gap is created between the segments. To eliminate the gap, one of the more common procedures involves the careful removal of bone interferences by bur. Forceful closure of the gap is contraindicated, since the condyle will be displaced laterally from the glenoid fossa, and functional condylar movement cannot be achieved thereafter. Ellis<sup>1)</sup> reported an attractive method of greenstick fracture of the distal segment, which we have occasionally employed. It produces fine results without any obvious complications. We have also occasionally performed another method in which the pattern of fracture is conventionally called a "bad split" and have obtained satisfactory results. In this method, a split line is intentionally created so that it runs along the buccal surface of the mandible, and the gonial angle should be involved in the distal segment.

## Implementation

After performing a horizontal medial osteotomy and an anterior border osteotomy in a routine manner, a vertical osteotomy is performed at the buccal side of the 1<sup>st</sup> molar, but is never extended through the inferior border. Chiselling is then carried out to separate the buccal cortical bone completely from the alveolar bone, just along the inner surface of the cortical bone. The range of chiselling is the whole vertical height at the distal part of the vertical osteotomy, with gradual shortening as the gonial angle is approached. Determining chiselling is performed sagittally at the edge of the inner bottom aspect of the cortical bone, adjacent to the vertical osteotomy, and slightly toward the buccal side of the inferior border to initiate a secure split along the buccal side of the inferior border. The split is continued in the posterior direction by controlling the torque of the large osteotome. This is done so that the split can be achieved along the line connecting the most inferior point of vertical osteotomy line and the most posterior end point of the horizontal medial osteotomy line (Fig. 1). Additional chiselling guides the direction for a desirable split.

## Discussion

This osteotomy pattern is facilitated to avoid bone interference at the

posterior edge and gonial angle of the distal segment. But, the masseter and internal pterygoid muscles remain attached to the distal segment, and in a case requiring more backward or sagittal rotational movement, this method cannot be applied because these muscles may pull the distal segment back to the original position. In a case requiring forward movement of the distal segment, this method is also not indicated due to the collision at the split line. Indications for this method are certainly limited, but I believe the method can bring about great benefit, if patient selection is appropriate.

#### Reference

1. Ellis E. A method to passively align the sagittal ramus osteotomy segments. *J Oral Maxillofac Surg* 2007; 65: 2125-30.

#### Figure legend.

##### Fig. 1

Postoperative condition of the osteotomy. The split line runs on the buccal side, from the inferior point of the vertical osteotomy, upward to the posterior point of medial osteotomy (arrow). The gonial angle is involved in the distal segment and is laterally protruded. The proximal and distal segments align themselves passively to one another.

