

also determine various interferences that may occur during the surgical procedure.

» Splint fabrication: The splints may be fabricated directly on the models<sup>16,18</sup> or from virtual models using the CAD-CAM technology.<sup>11</sup>

» Orthodontics preparation: As opposed to the original protocol with no presurgical orthodontics, a minimal duration of presurgical orthodontic treatment may be indicated to avoid interferences during the surgical procedure.<sup>10</sup>

Yu et al<sup>23</sup> and Villegas et al<sup>24</sup> recommended that brackets should be placed one week before orthognathic surgery. Ko et al<sup>25</sup> recommended bonding brackets one month before surgery.

The original Sendai SFOA has recommended leaving stainless steel wires in place post-surgically, while the stability of determined positions of the jaws have been achieved.<sup>16,18</sup> However, Choi et al<sup>21</sup> have recommended the use of flexible nickel-titanium wires immediately after the surgery. The use of nickel-titanium wires would result in immediate tooth movement, which can be an advantage due to regional acceleratory phenomenon. Liou et al<sup>26</sup> have preferred not to place any archwires at the time of surgery.

» Post-surgical splint: While some advocate the use of the splint only during surgery, others have advocated its use anywhere between one to four weeks after surgery. Sugawara et al<sup>18</sup> have employed a removable maxillary occlusal splint to stabilize the jaw position and masticatory function.

» Post-surgical orthodontics: The post orthodontic treatment may be initiated immediately post-surgery as proposed by Leelasinjaroen et al,<sup>27</sup> while others suggested a delay of two-three weeks.<sup>16,18</sup> Kim et al<sup>17</sup> suggested to wait four-six weeks before commencing with the orthodontic treatment.

### Treatment planning considerations for SFOA

The occlusion cannot be used as a guide during the surgical procedure in SFOA. The following should be considered during the treatment planning phase to maximize the stability of the corrected jaw position:

» The model surgery should result in an ITM comprising of two occlusal stops in the posterior and one in the anterior region.<sup>28</sup>

» The surgical movement of the jaws should be greater as compared to the conventional orthognathic surgery, to allow for decompensation of teeth post-surgery.

» The molar relationship may be used as a guide for ITM.

» Extractions may be indicated for correction of crowding, inclinations and improvement of facial profile. Sharma et al<sup>29</sup> suggested that extraction should be done if the angulation of the upper incisor to occlusal plane is less than 53 degrees. Moreover, distalization or angulating the maxillary segment during the surgical procedure may also be used to improve the teeth inclinations.

» The transverse discrepancy can be resolved either during surgery or post-surgery with archwires and elastics.

» In Class II division 2 cases, a short term period of minimal orthodontics to upright the incisors or to overcorrect the jaw deformity to Class III relations is indicated to provide sufficient overjet for surgical correction.<sup>10</sup>

» In Class III cases with moderate to severe crowding and retroclined incisors, the jaw deformity should be overcorrected to a Class II jaw relationship.

» In subjects with hypodivergent skeletal pattern, the deep bite can be corrected during surgery by bringing the anterior teeth into edge to edge bite with no contact between the posterior teeth. The posterior teeth are then extruded postsurgically to correct the bite.<sup>26,29</sup>

» In subjects with hyperdivergent skeletal pattern, the anterior open bite is corrected by clockwise rotation of maxilla and anticlockwise rotation of mandible to counter postsurgical relapse.<sup>29</sup>

### Stability of SFOA

Baek et al,<sup>30</sup> Choi et al<sup>31</sup> and Yang et al<sup>32</sup> have found no statistically significant differences in the stability of SFOA and COS. For transverse problems, Wang et al<sup>33</sup> have reported that the final treatment outcome in both SFOA and COS were similar. In the vertical plane, Liao et al<sup>34</sup> have reported increased counterclockwise rotation while Kim et al<sup>17</sup> found clockwise rotation of mandible in SFOA group as compared to COS group. For sagittal plane,