Orthognathic Surgery AHM

Clinical Indications

- Orthognathic surgery \(^{[A]}\) is considered medically necessary for any \textbf{1 or more} of the following conditions that are causing significant functional impairment
  - Apertognathia (either lateral or anterior not correctable by orthodontics alone)
  - Significant asymmetry of the lower jaw
  - Significant class 2 and class 3 occlusal discrepancies
  - Cleft palate
- Orthognathic surgery is considered medically necessary for correction of the following skeletal deformities of the maxilla or mandible when it is documented that these skeletal deformities are contributing to significant dysfunction, and where the severity of the deformities precludes adequate treatment through dental therapeutics and orthodontics alone. Select from \textbf{1 or more} of the following
- Maxillary and/or Mandibular Facial Skeletal Deformities Associated with Masticatory Malocclusion - orthognathic surgery is considered medically necessary for correction of skeletal deformities of the maxilla or mandible when it is documented that these skeletal deformities are contributing to significant masticatory dysfunction, and where the severity of the deformities precludes adequate treatment through dental therapeutics and orthodontics, examples include skeletal deformities including any \textbf{1 or more} of the following
  - Antero-posterior discrepancies \(^{[B]}\) - examples include \textbf{1 or more} of the following
    - Maxillary/mandibular incisor relationship: overjet of 5 millimeter (mm) or more, or a 0 to a negative value (norm 2 mm)
    - Maxillary/mandibular antero-posterior molar relationship discrepancy of 4 mm or more (norm 0 to 1 mm)
  - Vertical discrepancies- examples include \textbf{1 or more} of the following
    - Presence of a vertical facial skeletal deformity which is 2 or more standard deviations from published norms for accepted skeletal landmarks
    - Open Bite with \textbf{1 or more} of the following
      - No vertical overlap of anterior teeth greater than 2 mm
      - Unilateral or bilateral posterior open bite greater than 2 mm
    - Deep overbite with impingement or irritation of buccal or lingual soft tissues of the opposing arch
- Supraeruption of a dento-alveolar segment due to lack of opposing occlusion creating dysfunction not amenable to conventional prosthetics
- Transverse discrepancies- with 1 or more of the following
  - Presence of a transverse skeletal discrepancy which is 2 or more standard deviations from published norms
  - Total bilateral maxillary palatal cusp to mandibular fossa discrepancy of 4 mm or greater, or a unilateral discrepancy of 3 mm or greater, given normal axial inclination of the posterior teeth
- Asymmetries with 1 of the following
  - Antero-posterior, transverse or lateral asymmetries greater than 3 mm with concomitant occlusal asymmetry
- Orthognathic surgery is considered medically necessary for Facial Skeletal Discrepancies Associated with documented Sleep Apnea, Airway Defects, and Soft Tissue Discrepancies with 1 or more of the following
  - Orthognathic surgery is considered medically necessary in cases where it is documented that mandibular and maxillary deformities are contributing to airway dysfunction, where such dysfunction is not amenable to non-surgical treatments, and where it is shown that orthognathic surgery will decrease airway resistance and improve breathing, examples include
    - Studies that demonstrate persons with vertical hyperplasia of the maxilla have an associated increase in nasal resistance, as do persons with maxillary hypoplasia with or without clefts. Following orthognathic surgery, such individuals routinely demonstrate decreases in nasal airway resistance and improved respiration
  - Orthognathic surgery is considered medically necessary for patients with underlying craniofacial skeletal deformities that are contributing to obstructive sleep apnea
    - Before surgery, such individuals should be properly evaluated to determine the cause and site of their disorder and appropriate non-surgical treatments attempted when indicated
- Orthognathic surgery for correction of temporomandibular joint disease or myofascial pain dysfunction is considered experimental and investigational. See TMJ Disorders AHM Guideline
- Orthognathic surgery is considered medically necessary for treatment of speech impairments accompanying severe cleft deformity
  - Orthognathic surgery may help to reduce the flattening of the face that is characteristic of severe cleft deformity. By using osteotomy techniques along with bone and cartilage grafts, the upper and lower jaws and facial skeletal framework are moved and appropriately reconstructed. Pre-surgical orthodontic treatment is usually recommended
• Other orthognathic surgeries are considered experimental and investigational for correction of articulation disorders and other impairments in the production of speech because there is inadequate evidence from prospective clinical studies in the peer-reviewed published medical literature of the effectiveness of orthognathic surgery for this indication.

• Orthognathic surgery for correction of distortions within the sibilant sound class or for other distortions of speech quality (e.g., hyper-nasal or hypo-nasal speech) is considered not medically necessary as these distortions do not cause functional impairment.

• Orthognathic surgery is considered cosmetic for correction of unaesthetic facial features, regardless of whether these are associated with psychological disorders.

• Mentoplasty or genial osteotomies/ostectomies (chin surgeries) are always considered cosmetic when performed as an isolated procedure to address genial hypoplasia, hypertrophy, or asymmetry, and may be considered cosmetic when performed with other surgical procedures.

• The use of condylar positioning devices in orthognathic surgery is considered experimental and investigational.

• Orthognathic surgery experimental and investigational for all indications other than those listed above.

• Orthodontic treatment [C] may be needed prior to orthognathic surgery to position the teeth in a manner that will provide for an adequate occlusion following surgical repositioning of the jaws. For plans that require precertification, orthognathic surgery must be precertified prior to pre-surgical orthodontic treatment. The interim occlusion that is achieved by orthodontic treatment may be dysfunctional prior to the completion of the orthognathic surgical phase of the treatment plan.

Evidence Summary

Background

• Orthognathic surgery is the revision by ostectomy, osteotomy or osteoplasty of the upper jaw (maxilla) and/or the lower jaw (mandible) intended to alter the relationship of the jaws and teeth. These surgical procedures are intended (i) to correct skeletal jaw and cranio-facial deformities that may be associated with significant functional impairment, and (ii) to reposition the jaws when conventional orthodontic therapy alone is unable to provide a satisfactory, functional dental occlusion within the limits of the available alveolar bone. Congenital or developmental defects can interfere with the normal development of the face and jaws. These birth defects may interfere with the ability to chew properly, and may also affect speech and swallowing. In addition, trauma to the face and jaws may create skeletal deformities that cause significant functional impairment. Functional deficits addressed by
this type of surgery are those that affect the skeletal masticatory apparatus such that chewing, speaking and/or swallowing are impaired.

- There is limited evidence of the effectiveness of orthognathic surgery on temporomandibular disorders. Abrahamsson et al (2007) examined if orthognathic surgery does affect the prevalence of signs and symptoms of temporomandibular disorders (TMDs). A literature survey in the PubMed and Cochrane Library electronic databases was performed and covered the period from January 1966 to April 2006. The inclusion criteria were controlled, prospective or retrospective studies comparing TMDs before and after orthognathic surgery in patients with malocclusion. There were no language restrictions, and 3 reviewers selected and extracted the data independently. The quality of the retrieved articles was evaluated by 4 reviewers. The search strategy resulted in 467 articles, of which 3 met the inclusion criteria. Because of few studies with unambiguous results and heterogeneity in study design, the scientific evidence was insufficient to evaluate the effects that orthognathic surgery had on TMD. Moreover, the studies had problems with inadequate selection description, confounding factors, and lack of method error analysis. The authors concluded that to obtain reliable scientific evidence, additional well-controlled and well-designed studies are needed to determine how and if orthognathic surgery alters signs and symptoms of TMD.

- There is a lack of evidence to support the use of condylar positioning devices in orthognathic surgery. Costa et al (2008) stated that in the past few years, many devices have been proposed for preserving the pre-operative position of the mandibular condyle during bilateral sagittal split osteotomy. The authors stated that accurate mandibular condyle re-positioning is considered important to obtain a stable skeletal and occlusal result, and to prevent the onset of TMD. Condylar positioning devices (CPDs) have led to longer operating times, the need to keep inter-maxillary fixation as stable as possible during their application, and the need for precision in the construction of the splint or intra-operative wax bite. The authors reviewed the literature concerning the use of CPDs in orthognathic surgery since 1990 and their application to prevent skeletal instability and contain TMD since 1995. They concluded that there is no scientific evidence to support the routine use of CPDs in orthognathic surgery.

- Lindenmeyer et al (2010) performed a systematic review of the best available research literature investigating the relation of oral and maxillofacial surgical procedures to the onset or relief of chronic painful TMD. A comprehensive review of the databases CINAHL, Cochrane Library, Embase, Medline, NHS Evidence--Oral Health, PsycINFO, Web of Knowledge, and MetaLib was undertaken by 2 authors up to June 2009 using search terms appropriate to establishing a relation between orofacial surgical procedures and TMD. The search was restricted to English-language publications. Of the 1,777 titles reviewed, 35 articles were critically appraised, but only 32 articles were considered eligible. These were observational studies that fell into 2 groups; 9 were seeking to
establish a surgical cause for TMD. Of these, only 2 of a series of 3 claimed that there was a significant link, but this claim was based on weak data (health insurance records) and was abandoned in a subsequent report.

- Twenty-three studies were seeking to achieve relief by orthognathic surgical intervention. These were also negative overall, with 7 articles showing varying degrees of mostly non-significant improvement, whereas 16 showed no change or a worse outcome. No published report on the putative effect of implant insertion was found. The authors concluded that these apparently contradictory approaches underline a belief that oral surgical trauma or gross malocclusion has a causative role in the onset of TMD. However, there was no overall evidence of a surgical causal etiology or orthognathic therapeutic value. This review emphasized that it is in the patients' best interest to carry out prospective appropriately controlled randomized trials to clarify the situation.

- In a Cochrane review, Luther et al (2010) examined the effectiveness of orthodontic intervention in reducing symptoms in patients with TMD (compared with any control group receiving no treatment, placebo treatment or reassurance) and investigated if active orthodontic intervention leads to TMD. The Cochrane Oral Health Group's Trials Register, CENTRAL, MEDLINE and EMBASE were searched. Hand-searching of orthodontic journals and other related journals was undertaken in keeping with the Cochrane Collaboration hand-searching program. No language restrictions were applied. Authors of any studies were identified, as were experts offering legal advice, and contacted to identify unpublished trials. Most recent search was April 13, 2010. All randomized controlled trials (RCTs) including quasi-randomized trials assessing orthodontic treatment for TMD were included. Studies with adults aged equal to or above 18 years old with clinically diagnosed TMD were included.

- There were no age restrictions for prevention trials provided the follow-up period extended into adulthood. The inclusion criteria required reports to state their diagnostic criteria for TMD at the start of treatment and for participants to exhibit 2 or more of the signs and/or symptoms. The treatment group included treatment with appliances that could induce stable orthodontic tooth movement. Patients receiving splints for 8 to 12 weeks and studies involving surgical intervention (direct exploration/surgery of the joint and/or orthognathic surgery to correct an abnormality of the underlying skeletal pattern) were excluded. The outcomes were: how well were the symptoms reduced, adverse effects on oral health and quality of life. Screening of eligible studies, assessment of the methodological quality of the trials and data extraction were conducted in triplicate and independently by 3 review authors.

- As no 2 studies compared the same treatment strategies (interventions) it was not possible to combine the results of any studies. The searches identified 284 records from all databases. Initial screening of the abstracts and titles by all review authors identified 55 articles that related to orthodontic treatment and TMD. The full articles were then retrieved
and of these articles only 4 demonstrated any data that might be of value with respect to TMD and orthodontics. After further analysis of the full texts of the 4 studies identified, none of the retrieved studies met the inclusion criteria and all were excluded from this review. The authors concluded that there are insufficient research data on which to base clinical practice on the relationship of active orthodontic intervention and TMD. There is an urgent need for high quality RCTs in this area of orthodontic practice.

References


Reviewed by a Board Certified Internist
Reviewed by David Evans, MD, Medical Director, Active Health Management- Mar 2016
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Footnotes

[A] Required Documentation: written explanation of the patient's clinical course, including dates and nature of any previous treatment; physical evidence of a skeletal, facial or craniofacial deformity defined by study models and pre-orthodontic imaging; and a detailed description of the functional impairment considered to be the direct result of the skeletal abnormality. [ A in Context Link 1 ]

[B] These values represent 2 or more standard deviations from published norms. [ B in Context Link 1 ]

[C] Expenses associated with the orthodontic phase of care (both pre- and post-surgical) are considered dental in nature and are not covered under medical plans. [ C in Context Link 1 ]

Codes

CPT® or HCPCS: 21083, 21084, 21088, 21110, 21120, 21121, 21123, 21141, 21142, 21143, 21145, 21146, 21147, 21150, 21151, 21154, 21155, 21159, 21160, 21181, 21182, 21183, 21184, 21188, 21193, 21194, 21195, 21196, 21198, 21199, 21206, 21208, 21209, 21210, 21215, 21230, 21235, 21240, 21242, 21243, 21247, 21255, 21270, 21275, 21295, 21296, 42200, 42205, 42207, 42210, 42215, 42220, 42225, 42226, 42227, 42235, 42260, 42280, 42281, D5954, D59545, D5956, D5957, D5958, D5959, D7940, D7955, D8010, D8999