

Orthognathic Surgery (Corrective Jaw Surgery)

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Orthognathic Surgery (Corrective Jaw Surgery)

What Is Orthognathic Surgery?

Orthognathic surgery — from the Greek **orthos** (straight) and **gnathos** (jaw) — is a surgical procedure to reposition one or both jaws when the relationship between the upper jaw (maxilla), lower jaw (mandible), and facial skeleton cannot be corrected by orthodontic treatment alone.

The jaws determine far more than appearance. They govern how the teeth meet (occlusion), how you chew, how you breathe through your airway, how you speak, and the overall balance and proportion of your face. When the bones themselves are disproportionate — rather than merely the teeth — moving teeth alone cannot resolve the underlying skeletal discrepancy. Orthognathic surgery repositions the jaw or jaws to achieve a functional bite, a patent airway, and facial harmony simultaneously.

Procedures may involve the upper jaw only (Le Fort I osteotomy), the lower jaw only (bilateral sagittal split osteotomy), or both jaws in combination (bimaxillary surgery). Chin repositioning (genioplasty) is frequently performed concurrently to refine facial balance. At Collins Street Specialist Centre, A/Prof Patrishia Bordbar undertakes complex corrective jaw surgery with a particular focus on digital and virtual surgical planning, and has extensive experience in cleft and craniofacial deformities as well as adult jaw repositioning.

When Might You Need Orthognathic Surgery?

Orthognathic surgery is indicated when jaw skeletal discrepancy produces functional problems that orthodontics alone cannot solve. Conditions include:

- **Skeletal Class II** — the lower jaw is significantly set back relative to the upper (retrognathia), causing a pronounced overjet, lip incompetence, and airway narrowing - **Skeletal Class III** — the lower jaw protrudes forward or the upper jaw is underdeveloped, creating an underbite that cannot be

corrected by braces alone - **Open bite** — the front teeth do not meet when the back teeth are in contact, often from a combination of dental and skeletal causes - **Facial asymmetry** — one side of the jaw has grown differently to the other, producing visible facial imbalance and a canted bite - **Obstructive sleep apnoea (OSA)** — repositioning the upper and lower jaws (maxillomandibular advancement) significantly enlarges the pharyngeal airway, and is an established surgical treatment for moderate-to-severe OSA - **Cleft lip and palate** — individuals born with cleft palate often require Le Fort I advancement in late adolescence once facial growth is complete - **Congenital or developmental jaw deformities** — including hemifacial microsomia and other craniofacial syndromes

Referral typically originates from a specialist orthodontist or treating dentist. The decision to proceed is made jointly between the orthodontist and oral and maxillofacial surgeon after thorough clinical analysis and growth assessment.

What to Expect — Step by Step

1. Joint Surgical-Orthodontic Planning Orthognathic surgery is almost always a combined treatment with specialist orthodontics. The treatment sequence is:

- **Pre-surgical orthodontics (12–18 months):** Braces or aligners are used to align the teeth within each arch and eliminate any dental compensations that have developed to mask the underlying skeletal discrepancy. This phase deliberately worsens the bite appearance before surgery, as the teeth are being aligned to the corrected jaw position. - **Surgery** - **Post-surgical orthodontics (6–12 months):** Fine-tuning of occlusion after the jaws are in their new positions.

At Collins Street Specialist Centre, close coordination between the OMS and orthodontic teams — both located within the same building — facilitates regular joint reviews throughout the treatment journey.

2. Digital and Virtual Surgical Planning Contemporary orthognathic surgery is planned virtually before a single incision is made. CBCT imaging (Planmeca ProMax 3D Max) generates a three-dimensional model of the patient's skull and jaws. Using software such as coDiagnostiX, the surgeon virtually performs the osteotomies, repositions the jaw segments to the planned position, and assesses the impact on the bite, airway, and facial aesthetics. Custom surgical guides and occlusal wafers are manufactured from this planning data, ensuring the movements planned digitally are replicated precisely in theatre.

3. Surgery in Hospital Orthognathic surgery is performed under general anaesthesia in a hospital setting, typically as a one- to three-night inpatient admission. Incisions are made entirely inside the mouth — there are no external facial scars. The osteotomies are completed through these incisions, the jaw segments are repositioned to the pre-planned position using the surgical wafer as a reference, and fixation is achieved with small titanium plates and screws that remain permanently in place. The plates are low-profile, do not trigger metal detectors, and do not require removal in most patients.

Operating time is typically two to four hours for single-jaw surgery and four to six hours for bimaxillary procedures.

4. Immediate Post-Operative Period The jaw may be held with light elastic guidance (rather than rigid wiring) to support the healing bite in the immediate post-operative days. A liquid and soft diet is required, and swelling is pronounced in the first week. Hospital monitoring ensures adequate pain management, airway assessment, and nutritional intake before discharge.

Recovery and Aftercare

Orthognathic surgery involves a substantive recovery period, and patients should plan accordingly:

- **Weeks 1–2:** Significant facial swelling, bruising, and dietary restriction to liquids and very soft foods. Most patients take 2 weeks off work or study. Speech may be slightly affected initially. - **Weeks 2–6:** Swelling gradually resolves — approximately 60–70% of swelling resolves within 6 weeks, though the final soft tissue result takes 12 months to fully emerge. Diet progresses from soft to semi-soft foods as comfort allows. Elastic guidance is progressively reduced. - **Months 2–3:** Most patients return to normal activities. Post-surgical orthodontics resumes once the surgeon confirms adequate healing. - **Months 6–18:** Final orthodontic refinement and retention phase. The full aesthetic result becomes apparent as residual swelling continues to resolve.

Numbness or altered sensation of the lip, chin, cheeks, or palate is expected post-operatively and typically resolves over weeks to months as nerves recover. Permanent sensory change is uncommon.

Why See an Oral & Maxillofacial Surgeon?

Orthognathic surgery is among the most technically demanding procedures in the surgical dental specialties. It requires a surgeon who holds both a medical degree and a dental degree — understanding not only the skeletal and occlusal goals of the procedure, but also anaesthetic management, hospital-based surgical care, airway considerations, and craniofacial anatomy at a medical-surgical level.

Oral and maxillofacial surgeons complete 15–17 years of training, including undergraduate dentistry, a full MBBS, and four years of specialist OMS training in tertiary hospital environments. This is the only dental specialty that operates routinely under general anaesthesia in hospital.

Digital planning technologies — virtual osteotomies, custom surgical guides, and three-dimensional outcome simulation — have substantially improved the predictability of outcomes. At Collins Street Specialist Centre, these tools are integrated into every complex jaw surgery case, and the proximity of the orthodontic and OMS teams within the one building enables a level of interdisciplinary coordination that is difficult to replicate across separate practices.

Our Specialists

A/Prof Patrishia Bordbar — Specialist Oral & Craniomaxillofacial Surgeon. BSc, MBBS (Hons), MDSc (OMS), FRACDS (OMS), FRCS (Edinburgh). Clinical A/Professor, University of Melbourne. Past President ANZAOMS. Chair, AOMI Board Oceania. Consultant Surgeon at the Royal Children's Hospital and Western Hospital Melbourne. A/Prof Bordbar has extensive experience in complex corrective jaw surgery including bimaxillary osteotomies, craniofacial and cleft-related jaw advancement, and OSA surgery. She applies digital and virtual planning as standard practice for all orthognathic cases.

Dr Ricky Kumar — Specialist Oral & Maxillofacial Surgeon. BHB, MBChB, BDS, FRACDS (OMS). Fellowship training at the Royal Children's Hospital Melbourne and Oxford University Hospitals. Experience across the full scope of corrective jaw surgery in adult and paediatric patients. *Please confirm Dr Kumar's availability at the time of booking.*

Our OMS team consults from **Level 12 & Tower, Manchester Unity Building, 220 Collins Street, Melbourne CBD**.

Related Treatments

- **Surgical Orthodontics** (/orthodontics/surgical-orthodontics/) — The orthodontic component of combined orthognathic treatment; managed by our specialist orthodontic team in parallel with OMS -

Orthodontics Hub (/orthodontics/) — Overview of specialist orthodontic services at CSSC - **TMJ Surgery** (/oral-maxillofacial-surgery/tmj-surgery/) — Jaw joint conditions that may coexist with or influence orthognathic planning - **Bone Grafting (OMS)** (/oral-maxillofacial-surgery/bone-grafting-oms/) — Bone augmentation where jaw repositioning creates bone deficits that require grafting