

Facial Deformity

An imbalance of the symmetry, size, and shape of the facial structures in children and adults can affect self-esteem and confidence. With the advancement of maxillofacial treatment, jawbones can be realigned to present a more harmonized, balanced face.



Facial deformity can induce a strong social and psychological impact on those affected.

Presentation and functional impact

Noticeable facial deformity may present as lower jaw protrusion, concave midface from retrusion of the upper jaw, and dental misalignment. There may be functional problems with an inability to chew foods properly, difficulty with speech, impaired breathing or obstructive sleep apnoea.



Pre-operative CT scan showing a twisted jaw and chin to the left side.

Though a few congenital facial deformities are present at birth, most of the deformities develop or become more pronounced during the process of facial growth at around 13 - 17 years old. Other deformities may be as a result of trauma, tumour or treatment of diseases. It can induce a strong social and psychological impact on those affected.

Examination and investigations

Facial deformities are diagnosed through consultations with the relevant specialists and a systematic clinical assessment of the mouth and facial structures, supported with investigations including facial skeletal radiographs, CT scans, photographs and dental models. Psychological screening through questionnaires may also be valuable to assess the impact on self image and mental well being.

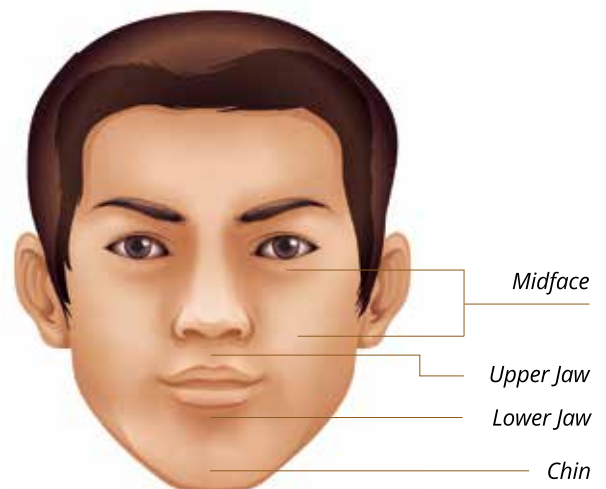
Classification:

Facial deformity can be classified into the following categories based on the diagnosis:

Site	Mid-face, upper jaw (maxilla), lower jaw (mandible), chin
Deformity	Hyperplasia (over-size), hypoplasia (under-size), asymmetry
Plane	Antero-posterior (from front to back), vertical, transverse

Some patients' upper jaw, lower jaw or both jaws are mal-positioned with few extended to the mid-facial skeleton.

Site of the Facial Deformity



Treatment and care

Orthognathic surgery, the correction of a facial deformity, involves complex surgical techniques and requires the expertise of a team of healthcare professionals, comprising of an oral and maxillofacial surgeon, orthodontist, prosthodontist and clinical psychologist. The level of treatment complexity is tailored to the patients' conditions. Most patients will require an integrated treatment of orthodontics and facial skeleton corrective surgery (orthognathic surgery), while a few patients may require additional soft tissue surgery.

The main goals of orthognathic surgery are to achieve an aesthetic facial improvement with increased facial symmetry and normal dental occlusion (contact of teeth of upper and lower jaws). For those suffering from airway problems due to obstructive sleep apnoea, surgically moving forward the upper and lower jaws and the associated adjustments of the palate and tongue can effectively enlarge the airway with good success in over 90% of cases.

Most corrective facial surgeries are performed once facial bones have matured after age 17-18. For those who have severe to moderate obstructive sleep apnoea, corrective surgery can be done at any age, even in infants and children to improve their quality of life, and minimize the morbidities from obstructive sleep apnoea on growth and academic development.



Facial deformity can cause impaired breathing or obstructive sleep apnoea. Surgical means can help enlarge the airway by realigning the jaws and palate.

The procedure and recovery

Prior to the operation, a combination of clinical assessment with radiographs, photographs, dental models, CT scan or 3D printed facial bone model will be used by oral and maxillofacial surgeons for defining the treatment plan, collaborate with other professionals and plan the surgery with pre-operative prediction of the dental occlusal and facial aesthetic outcomes.

Under general anesthesia, the surgery can usually be performed through the mouth to prevent facial scarring. The maxillofacial surgeon will separate the facial bones then fix the mal-positioned bones and occlusion to the planned new position with titanium mini-plates and screws.

Patients are normally hospitalized for 4-5 days. After the operation, patients will experience mild to moderate pain for 1-2 days. Facial swelling will take around 2 weeks to subside. Patients will require a soft diet for 6 weeks while the jawbones unite together. The amount of time off work required will depend on the job nature.

Patients will be reviewed by the surgeons in first six weeks and are then transferred to the orthodontist for post-operative orthodontic treatment. Any missing teeth will be coordinated with the restorative dentists or prosthodontists in dental restoration. Soft tissue surgery is recommended to be done about 1 year after orthognathic surgery.



A 3D printed facial model which was generated using the CT scan data. It shows that the upper jaw is retruded and rotated, whereas the lower jaw is protruded resulting in the inability of the teeth to meet.



Before surgery

The upper jaw was under-developed while the lower jaw protruded with the upper and lower lips unable to close.



After surgery

The upper jaw was repositioned to a more forward position and lower jaw set back posteriorly achieving a normal occlusal relationship. The upper and lower lips are now able to be closed.

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面顎變形

面部結構、大小和形狀不勻稱，會影響兒童和成人的自尊和自信心。隨著頰面外科治療的發展，醫生可以把患者的顎骨重新調整，令其面部變得更加自然和勻稱。



面顎變形可以對病人的社交和心理構成重大的影響。

外觀與功能上的影響

面顎變形顯而易見，包括下顎突出、上顎後移而令面的中間部分凹陷，及牙齒錯位，這可能會構成功能上的問題，如咀嚼困難、說話出現障礙、呼吸受阻和阻塞性睡眠窒息症。



手術前電腦掃描影像顯示
上下顎和下巴均向左邊傾側。

儘管小部分的面顎變形個案是先天的，嬰兒出世時已出現，然而大部分的個案會在13至17歲身體成長階段出現或變得更明顯；部分個案則是由於創傷、腫瘤或治療其他疾病所造成的。面顎變形亦會對病人的社交和心理造成重大影響。

臨床檢查與檢驗

面顎變形的診斷須經由相關專科醫生的問診，並為病人作有系統的口腔和面部結構臨床檢查，再配合面部X光、電腦掃描、拍照和牙齒模型的輔助檢查，以協助確診。病人的心理狀況則可透過問卷作評估，以了解面顎變形對自我形象和心理健康所帶來的影響。

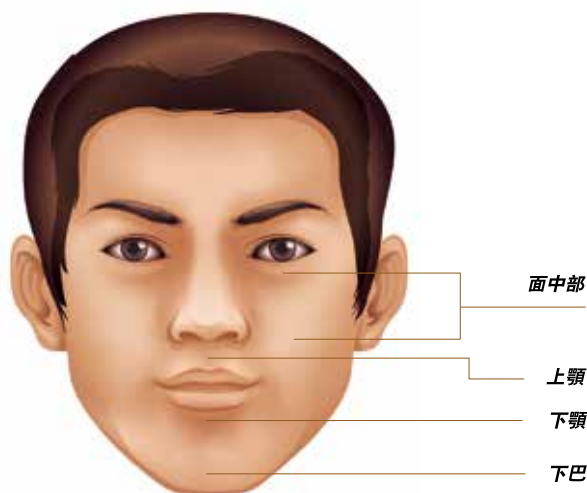
診斷

面顎變形可根據以下診斷的資料分類：

位置：	面中部、上顎、下顎、下巴
變形程度：	增生（過大）、發育不全（過小）、不對稱
平面：	前後位（從前到後）、垂直、橫向

部分病人的上顎骨、下顎骨或上下顎骨會錯位；少數病人的錯位情況甚至會延伸到面中部的骨骼。

面顎變形的位



治療和護理

正頷（顎）手術用來矯正面頰變形，當中牽涉複雜的手術技巧，因此需要一個專業的醫護團隊共同合作，包括口腔頷面外科醫生、牙齒矯正科醫生、修復齒科醫生和臨床心理學專家。

手術治療的程度會按著病人的情況而定。大多數病人需要牙齒矯正和面部骨骼矯正手術（正頷手術）的綜合治療；部分病人則可能需要相關的軟組織手術治療。

正頷手術的主要目標是要改善面部的對稱程度、修復牙齒咬合，以改善外觀。若面頰變形導致睡眠窒息症，造成氣管問題，手術可以把上下顎骨推前，以及調整相關顎骨和舌頭的位置，有效地擴張氣道。該手術的成功率達九成以上。

大部份面頷改善手術都會在面部骨骼發展成熟後才進行，年齡為17至18歲後。患有中度或嚴重阻塞性睡眠窒息症的病人可在任何年紀接受矯正手術，包括幼兒及兒童，以改善生活質素、減少因睡眠窒息症對成長及學業的影響。



面頰變形可以阻塞呼吸或造成睡眠窒息症。手術可調整顎骨和舌頭的位置，以擴張氣道。

手術及術後康復

手術進行前，口腔頷面外科醫生會按著X光、相片、牙齒模型、電腦掃描和3D打印的面部骨骼模型來作臨床評估，以制定治療方案、以及跟其他專家討論、計劃手術流程，並預期手術對改善咬合和外觀的成效。

手術須全身麻醉，通常會通過口腔進行，以避免對面部造成疤痕。口腔頷面外科醫生會把病人面部的骨骼分開，然後利用小型鈦金屬片和螺絲把錯位的骨骼重新修復至新的位置，及改善上下顎的咬合。

病人通常需要住院4至5天，並在頭1至2天會感到輕度至中度痛楚。面部浮腫的情況會在約2星期後開始消退。手術後首6個星期，顎骨癒合中，需要進食軟餐。至於工作休假的長短則取決於工作性質。

手術後首6個星期，須由外科醫生評估術後的狀況，然後再轉介病人至牙齒矯正科醫生，再進一步矯正牙齒。若有任何牙齒缺失，會由牙醫或修復齒科醫生幫助修補。軟組織手術則建議於正頷手術一年後才進行。



利用電腦掃描的數據，可打印出3D面部骨骼模型。上圖的面部骨骼模型顯示上顎凹入和扭曲，而下顎亦有突出的情況，以致上下顎牙齒不能咬合。



手術前

上顎發育不足，下顎則發育過多而突出，令雙唇無法合上。



手術後

手術把上顎移向較前的位置、而下顎向後移，令咬合正常，雙唇亦可合上。

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