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內文：

### Abstract

- Autotransplantation has been an accepted treatment alternative in the Scandinavian countries for decades in cases of agenesis or trauma in children
- When working with children with rare syndromes, lack of teeth is often so pronounced that there are no teeth available for transplantation.
- Sometimes there are retained teeth that can be transplanted.
- First case is a girl with incontinentia pigmenti, 15 years old at the time of transplantation.
- Second case is a boy with severe cherubism, aged 9.5 years at the time of transplantation.
- Both teeth were successfully transplanted and have been followed for more than 2 years with no ankylosis or pulp necrosis developing

### Introduction

- Transplantation of teeth to replace missing teeth, while implant treatment usually is performed at a later age.
- Transplantation employing single rooted premolars as the donor tooth is the most common.
- Root development continues after transplantation of teeth with unfinished root formation.
- In fact, Czochrowska *et al.*<sup>2</sup> examined 30 teeth in 25 of their patients and found a survival rate of 90% with a mean observation time of 26 years!
- The optimal time for transplantation of premolars is when the root development has reached three quarters of the final root length thus ensuring further root growth and a vital pulp
- Transplantation of teeth most often takes place when there is crowding in one jaw and agenesis in the opposite jaw, or when upper front teeth are lost due to trauma.
- The transplanted tooth keeps the bone in place and prevents early implant treatment.
- A successful outcome requires that the donor tooth can be removed easily, without destroying the dental follicle.
- Furthermore, the presence of adequate space at the recipient site is mandatory, and mobility during the 2-week fixation period must be avoided.
- The transplant is placed in a half-erupted position using conventional sutures as opposed to rigid fixation. Periodontal healing is complete within 8 weeks
- Pulp revascularisation has been reported in 100% of the teeth with initial to half root development but decreased to 0% for teeth with fully developed roots.
- Damage to the periodontal ligament must be avoided because it might lead to

ankylosis.

- This complication prevents eruption and leads to a gradual substitution of the root with bone.
- When the root of a transplanted premolar continues to develop and a normal periodontal ligament is established, such teeth can be moved by applying orthodontic forces like any other tooth which has erupted into occlusion

### Case 1

- Incontinentia pigmenti (IP8) is a genetic disorder which affects skin, hair, teeth and nails
- A subgroup of ectodermal dysplasia and is characterised by skin lesions and pigmentation in addition to the traditional findings of ectodermal dysplasia (defective development of hair, skin, nails, teeth and sweat glands)
- The pigmentation involves the trunk and extremities. Tooth agenesis is a common finding, and teeth may be narrow and peg shaped.
- A female was born in 1992. At the time of treatment, in December 2007.
- 65 as still in place, but had a deep filling and apical periodontitis with a fistula and advanced bone loss, hence the tooth had to be removed



**Figure 2** Case 1, OPG 14 days after transplantation of 17 to the region of 25.



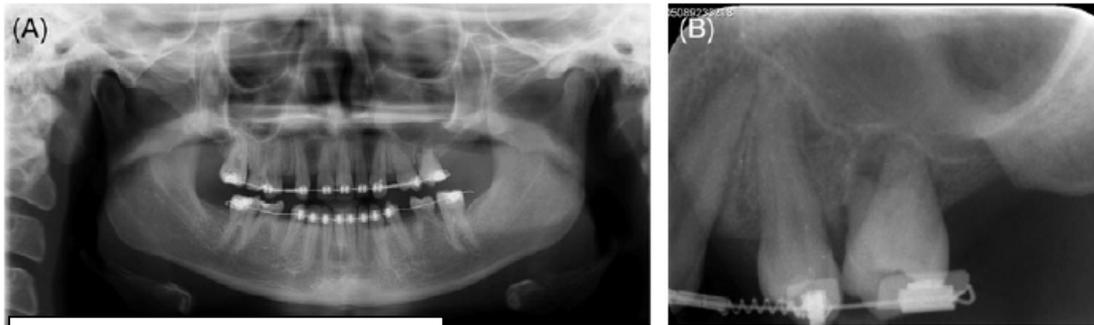
Case 1, OPG 14 days after transplantation of 17 to the region of 25.

### Treatment

- As 17 was retained and had no antagonist, the plan was to transplant 17 and remove 65 at the same time
- The girl was given antibiotics for a week prior to the transplantation. On X-rays, the roots of 17 appeared to be much less developed than the ideal 3/4. In this case, the short root was judged an advantage as a longer root of a molar would have complicated the transplantation.
- Due to the position of 17, retained at a mesial angle to 16, it was hard to remove 17 carefully, without disrupting the dental follicle.
- In addition, when removing the tooth from the donor site, it became apparent that the roots were more developed than expected and that the diameter of the root was wider than the recipient site.
- In fact, after removal of 65 and careful curettage, the recipient site had to be enlarged twice to allow the placement of the donor tooth.

### Follow-up

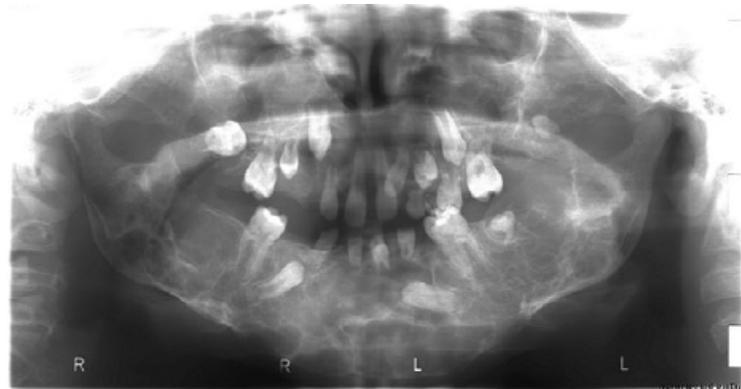
- the orthodontist put a bracket on the tooth already after 4 months, but the actual forces employed were limited. the tooth is still in place with no signs of ankylosis



Case 1, 2 years after transplantation  
of 17 to the region of 25.OPG(A); X-ray (B).

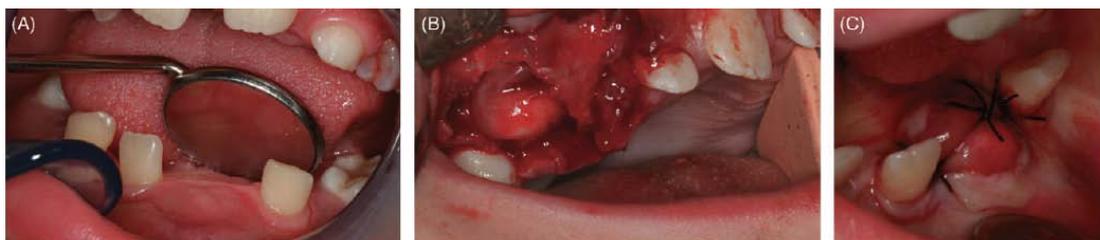
### Case 2

- Cherubism is a rare genetic disorder characterised by bilateral, symmetrical enlargement of the mandible or both the mandible and the maxilla, resulting from multilocular cysts composed of fibrotic stromal cells and osteoclast-like cells
- Onset usually is between ages two and five. The jaw lesions progress until puberty when they stabilise and then regress in most cases.
- Dental abnormalities include congenitally missing teeth, root resorption and displacement of permanent teeth by the jaw lesions.
- Our patient is a boy born in 1998 with cherubism affecting both jaws.
- He had an anterior open bite with a relatively big horizontal overjet, and his maxillary midline was almost 6 mm to the left. Only teeth 16/46 and 25/36 were in occlusion.



### Treatment

- In the upper jaw, there was no room for 14. We decided to transplant 14 to the lower front region
- the root of 14 was much shorter than the ideal length for transplantation as it was around 1/2 of the anticipated root length.
- However, there was no time to wait for additional root growth as 14 prevented the eruption of 15.
- The recipient site was prepared according to the usual routine, but after penetrating the alveolar cortical bone, a huge bony defect was found so that 14 was placed in a cavity rather than a prepared alveolus. The tooth was sutured in place according to routine procedure



Case 2, clinical photos during the transplantation demonstrating the recipient site (A), the exposed donor tooth 14 with intact follicle (B) and the transplanted tooth fixed with sutures (C).



Case 2, clinical photos 7 months after transplantation of 14 to the lower front.

**Discussion**

- In both patients, parts of their dental problems have been solved through transplantation of a tooth which would otherwise have been removed
- The teeth still function more than 2 years later, even though the root length of both transplanted teeth were too short in both cases, one tooth was transplanted to a previously infected area, and the other to a cystic lesion.
- The infected 65 had to be removed at age 15 in case 1, an implant could not be installed due to lack of bone and her young age, possibly implying future infraposition of the implant
- If this tooth fails in the future, implant treatment most probably can be carried out without prior bone transplantation.
- For the boy with cherubism, only one of his many problems is solved through transplantation of one tooth. He has to undergo extensive corrective and reconstructive treatment after puberty due to his severe cherubism.
- As he stands the risk of losing most of the teeth in the lower jaw, one more tooth is always an advantage. If nothing else, it can be used to support a partial denture until future implant installation.

題號	題目
1	Which is wrong about incontinentia pigmenti? (A) Affecting skin ,eyes ,central nervous system and oral structure (B) Tooth would be hypodontia and delay eruption (C) Male predilection (D) The teeth are narrow and peg-shape
答案(C)	出處：oral and maxillofacial pathology 2nd edition, P650~p651
題號	題目
2	About cherubism, which statement is wrong? (A) Usually occurs between the age of 2~5 years (B) Caused bilateral bony expansion only on mandible (C) Radiographically,multilocular lesion are typical (D) Caused teeth missing and impaction
答案(B)	出處：oral and maxillofacial pathology 2nd edition, P547~p548