

We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,900

Open access books available

186,000

International authors and editors

200M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com



Facial Prosthesis

Tatjana Dostalova, Jiri Kozak, Milan Hubacek, Jiri Holakovsky,
Pavel Kříž, Jakub Strnad and Michaela Seydlova
*Charles University, 1st and 2nd Medical Faculty, Prague,
LASAK, Ltd.
Czech Republic*

1. Introduction

The use of facial prostheses such as wax ears has been reported in ancient Egypt. The first historically documented evidence comes from sixteenth century, when the French surgeon Ambroise Paré describes the first nose prostheses from gold, silver and “papier mâché”, which were held to the face by a string tied around the head. In late 19th century Claude Martin conceived an idea of an immediate prosthesis using tissue excised from the maxilla and mandible as a template for fabricating complex appliances. In 20th century, while the quality of lifelike craniofacial prostheses was considerably improved with introducing of silicone materials, the problem of their retention, which is important for aesthetics, function, and comfort, was not entirely solved. With increasing aesthetic requirements conventional fixation tools such as skin adhesives, skin pockets, skin loops, and glasses became unsuitable. It was Brånemark, who first placed a modified extraoral implant for a bone-anchored hearing aid in 1977 and for a bone-anchored auricular prosthesis in 1979. These events changed concepts of prosthetic maxillofacial reconstruction. Since then, osseointegrated extraoral implants are widely used for retention of orbital, ear, and nose prostheses. Their usage diminishes adhesive related problems like discoloration and deterioration of the prosthetic material. The skin and mucosal surfaces are less subject to mechanical and chemical irritation from intrinsic mechanical retention, adhesives, or adhesive solvents. Maintenance of fine feathered margins and simple positioning of an implant-retained craniofacial prosthesis greatly increased their aesthetic qualities. Lot of scientific and clinical studies confirm the success of their practical application and improvement of patient's quality of life.

Acquired facial defects, especially after radical surgical operations very often result in huge functional, cosmetic and psychological handicap in patients. A complex rehabilitation is necessary to be carried out by maxillofacial surgeons and prosthodontists. Plastic surgical reconstruction of these defects is frequently limited due to unfavorable conditions, such as vascular compromise of the surgical bed due to radiotherapy, insufficient residual soft and hard tissues. In such cases, rehabilitation of patients with large maxillofacial defects is done using craniofacial prostheses, which can offer an acceptable aesthetic solution.

Facial prostheses are constructed by maxillofacial surgeon, implantologists, prosthodontists and technician, as an alternative treatment when facial defects cannot be surgically fulfilled. Facial prosthesis using dental implants and ball attachments, bars or magnetic abutments

are a method of choice in replacement of missing hard and soft facial tissues. Nose, eye and ear form, coloration, and texture must be as indiscernible from the surrounding natural tissues as possible. Rehabilitation efforts can be successful only when patients can appear in public without fear of attracting unwanted attention.

Osseointegrated implants have various advantages over either adhesive or spectacle-retained prostheses for the reconstruction of the facial defects. They provide better retention of the prosthesis, so that the prosthesis is properly positioned and the patient can wear it more confidently. There is no skin irritation from adhesive and the prosthesis does not need to have adhesive cleaned off each time it is used. The prosthesis can be made thinner, with feathered edges that blend with the skin, which offers the patient improved aesthetics. A pre-operative planning meeting with the patient and multidisciplinary team shows not only different prosthetic options but also e.g. cleaning of the abutments and prosthesis.

The implants have had a dramatic impact on patient acceptance of facial prostheses. Patients like the security, comfort, and convenience of implant-retained prostheses, benefits that are not attainable with earlier methods of retention. Surgeons have come to appreciate the reduced need for numerous complex surgical reconstructive procedures in many of these patients. For large defects, a multidisciplinary approach is recommended, combining flap reconstruction and implant-retained prosthetic rehabilitation to achieve optimal results. Earlier reports have shown that implants are not uniformly successful, and the failure rates in some patients/sites are quite high. The failures and complications appear to be site specific and radiation and time dependent.

Facial prosthesis with three dental implants is a method of choice in replacement of missing hard and soft orofacial tissues. Dental implants support arise confidence of the patient in public. Goal of the contribution is to analyze systematically the patients with the orbital surgical defects. Multidisciplinary therapy involves the following disciplines: ophthalmology, maxillofacial surgery, implantology and prosthodontics.

Midfacial defects can be divided into two major categories: midline midfacial defects, which include the nose and/or the upper lip lateral defects, which include the cheek and the orbital contents

The choice between surgical reconstruction and prosthetic restoration of large facial defects remains a difficult one and depends on the size and etiology of the defect, as well as on the wishes of the patient. Development and application of osseointegrated implants to facial defects has, in part, changed patient perceptions of facial prosthetics. Implants allow convenient and secure positioning of the prosthesis, leading to greater patient acceptance.

A retrospective review will be performed in patients, who had undergone reconstruction of facial prosthesis from 2005 to 2010. Case reports evaluate step by step material and methods including implants insertion.

The diagnoses that are indicated for surgical treatment are mainly three: oncological, traumatological diagnoses and genetic and/or obtained disorder. The aims of surgical and prosthodontic rehabilitation are replacement of missing soft and hard facial structures, rehabilitation of body handicap and social problem and quality of life.

2. Treatment protocol

The treatment of a patient with oral cancer or after mutilation trauma is a collaborative team effort among maxillofacial surgeons, radiation oncologists, and prosthodontists. Free tissue transfers are routinely used to reconstruct both the soft tissue and bone defect immediately

following the ablative surgery. A large percent of patients receive radiation 4 to 6 weeks postoperatively. The total radiation dose to the tumor bed depends on the presence or absence of microscopic disease at the surgical margin. The tumor dose is generally limited to 55 Gy for patients with clear margins, and up to 65 to 70 Gy in patients with close margins. Radiation positioners are used extensively, and radiation fields are configured to minimize exposure of the major salivary glands to high doses of irradiation; however, intensity-modulated radiation therapy was not employed. Radiation dose to bone can often be minimized in areas of proposed implant sites.

Approximately 6 weeks after the ablative surgery, it was anticipated that the subjects would receive radiation therapy for 5 to 7 weeks. New conventional prostheses were fabricated as soon as the healing from reconstructive surgery and radiotherapy would permit. It was planned that implants would be placed 4 to 6 months after reconstruction, depending on the need for postoperative radiation therapy. All implants were placed secondarily following healing of the osteotomy sites and resolution of acute radiation therapy effects. Three dental implants 10 mm or longer and 3.75 mm in diameter were placed. Implants were located in the available native bone and/or in the free vascularized bone of the reconstructed mandible. Surgical guides were fabricated for each subject to assist the surgeon in positioning implants for ideal prosthetic restoration. Segments of impeding reconstruction plates were removed at this surgery prior to the placement of implants.

The possibilities of prosthesis reconstruction are at first artificial anchorage of epithesis – classical rehabilitation and second dental implants and ball attachments, bars, magnets.

Patient prognosis is important, but even a year or two of good quality prosthetic rehabilitation may add considerably to the patient's quality of life. The benefits implant insertion and facial prosthesis is following. The optimal stability of the prosthesis guaranteed the patient recovery of his social life.

3. Nasal prosthesis

Clinical report

A 63 years old women with diagnosis recurrent basocellular cancer in the nose was treated. After ablation of the nose, external radiotherapy and chemotherapy were applied. Full oncological treatment was completed in 2007. The patient had had no other systemic problems, was in good health, she had no serious injuries, had just undergone the ordinary children's diseases, and she did not suffer from any allergies. She did not drink alcohol, did not smoke and take drugs. The surgical and prosthodontic rehabilitation was started 1 year after termination of the treatment (Fig. 1, 2).

In the margin of the postoperative defect 3 intraosseal dental implants (Impladent, Lasak Ltd., Czech Republic) were inserted. The operation was done under general anesthesia with nasotracheal intubation. The primary implant site for nasal defects was the piriform ridge at the base of the nose (2 implants – left and right). Also the glabella was used as an implant site for our defect; the primary consideration was the degree of pneumatization of the frontal sinus and the quantity of overlying bone. The operation lasted 65 minutes and was without any complications. Healing of the wound was without an inflammatory process. Lincomycin (600 mg p.o.) provided an antibiotic covering. The fourth day after operation the patient was dismissed in good condition. Six months after implant placement and the healing period the prosthetic reconstruction began. The patient was screened with a control tomogram. Magnetic attachments were inserted and nasal epithesis was prepared following way.

The one-stage technique, the nasal prosthesis with freestanding abutments and magnet retention were used. The direction of emergence of the abutments was examined. It was desirable to have the retentive elements oriented to pull the prosthesis onto the shin surface. To achieve this and to have the retentive components in a position that is convenient to manipulate, hand-made cantilevered abutments were selected (Impladent, Lasak Ltd., Czech Republic). A try-on set of custom-made magnetic abutments were available to allow for selecting the appropriate cantilever angle.

The impression of the defect is recorded as a sectional alginate impression (Kromopan 100, Lascod). The impression was boxed and poured in the stone. Baseplate wax was used to form the borders of the designed acrylic-resin substructure. The wax pattern (wax up) was prepared and evaluated on the patient and finalized.

A stone overcast is constructed. The wax is boiled out and the surfaces of the cast and overcast are painted with separating medium and autopolymerizing acrylic resin (Duracryl, Dental). The acrylic resin is cured in a pressure pot. Prosthesis form, coloration and texture were finished with special silicone (Multisil Epithetic, Bredent). The completed nose was pumiced and polished. A magnet was attached to the face of the abutment. The interface between the abutment and the keeper was recorded with a one-phase silicone. The magnets were connected to the abutments.

4. Ocular prosthesis

The loss or absence of an eye may be caused by a congenital defect, irreparable trauma, tumor, a painful blind eye, sympathetic ophthalmia, or the need for histological confirmation of a suspected diagnosis. Orbital diseases are relatively rare but considering the anatomy of surrounding structures, they present a very serious disorder. Tumors in the orbit area represent between 0.2 – 0.5 % of the total. Eye and eye adnexa tumors are manifested by a number of symptoms: dystopia, bulbar motility dysfunction, exophthalmia, and diplopia. Depending on the severity of the situation, the surgical management may include one of 3 approaches: evisceration, enucleation, or exenteration.

Evisceration is a surgical procedure wherein the intraocular contents of the globe are removed, leaving the sclera, Tenon's capsule, conjunctiva, extraocular muscles, and optic nerve undisturbed; the cornea may be retained or excised.

Enucleation is the surgical removal of the globe and a portion of the optic nerve from the orbit.

Orbital exenteration is the en bloc removal of the entire orbit, usually involving partial or total removal of the eyelids, and is primarily performed in order to eradicate a malignant orbital tumor.

In particular, diagnostics is provided by an ocularist; otorhinolaryngologist and dentist examinations are also suitable. Auxiliary imaging methods are also indispensable part of the diagnostic procedure. These include X-ray images of the skull in dorsoventral, semiaxial and lateral projection. In addition, ultrasonography, computed tomography and often also nuclear magnetic resonance examination are also employed. According to the specific diagnosis it is possible to establish precisely the extent of the damage to the eye, surrounding structures in the orbital area and to determine a medical treatment. As for the treatment of solid tumors, radical surgical solution is usually the first step despite the risk of possible functional and aesthetic defects.

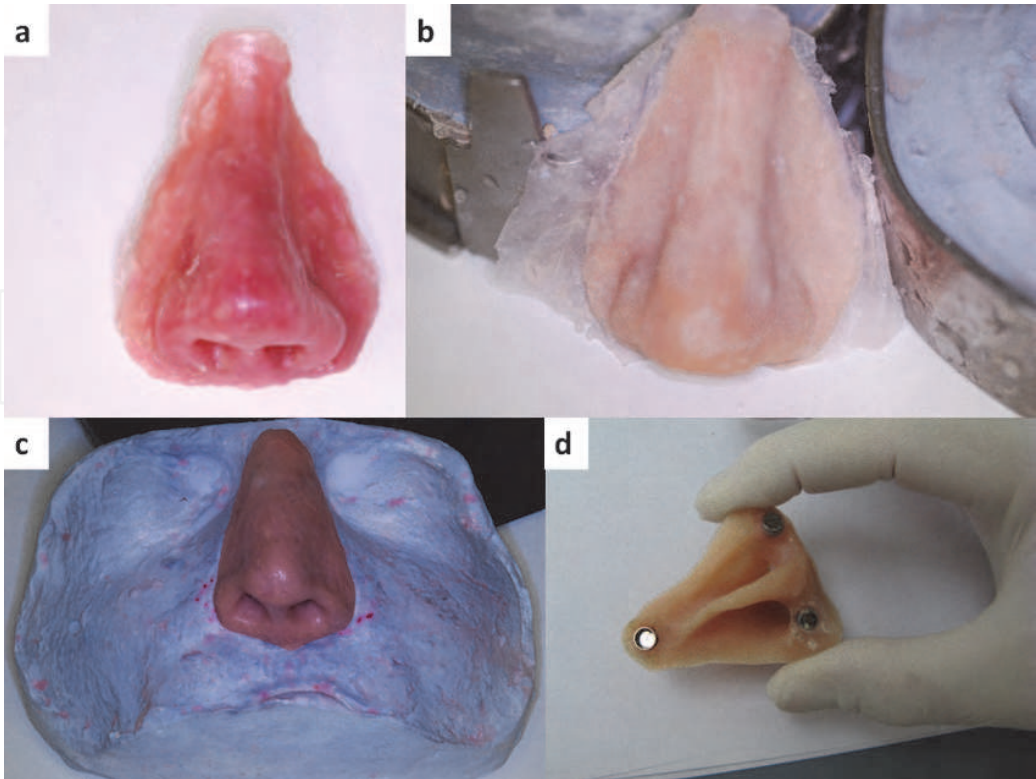


Fig. 1. Nasal prosthesis: a) wax up; b) polymerization, c) coloration; d) magnets insertion.

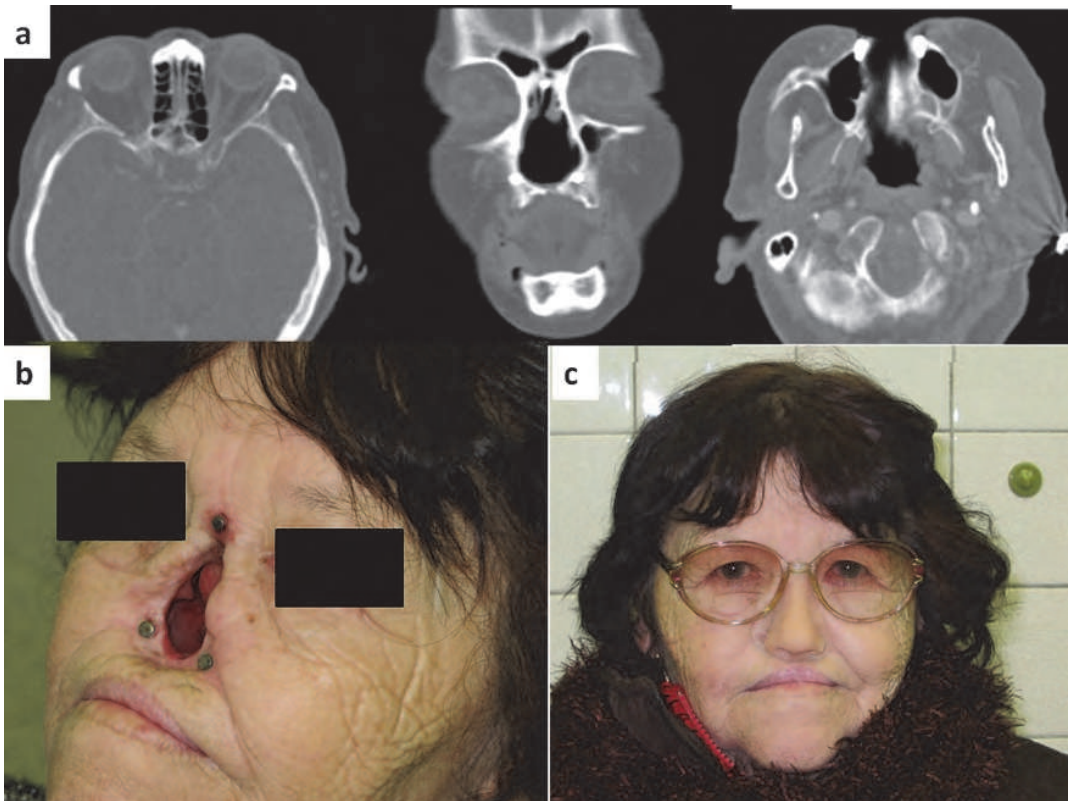


Fig. 2. Nasal prosthesis: a) CT after 3 implants insertion, b) magnet attachments in situ; c) patient after rehabilitation.

The disfigurement associated with the loss of an eye can cause significant physical and emotional problems. Replacement of the lost eye as soon as possible after healing is necessary to promote physical and psychological healing for the patient and to improve social acceptance.

Prosthetic rehabilitation that restores these facial disfigurements may improve the level of function and self-esteem for patients. However, difficulties with facial prostheses arise due to movable tissue beds, quality of prosthesis retention, and associated skin reactions to adhesives. The use of osseointegrated implants in the craniofacial region reduces prosthesis limitations associated with medical-grade adhesives and is a treatment option with high long-term success rate of facial prostheses.

Facial prosthesis with three dental implants is a method of choice in replacement of missing hard and soft orofacial tissues. Prosthesis form, coloration and texture must be as indiscernible from the surrounding natural tissues as possible. Rehabilitation efforts can only be successful when patients can appear in public without fear of attracting unwanted attention. Dental implants support gives the patient confidence in society. An important prerequisite for successful treatment of such handicapped patients is high-quality osseous tissue of defect margins. The following case report demonstrates a step by step processing of the orbital epithesis.

Clinical report

21- years old man was referred to the Clinic of Dentistry and Maxillofacial surgery in Prague. In two years of age he was operated for retinoblastoma of the left eye. After enucleation, external radiotherapy and six cycles of chemotherapy were applied (Etoposid and cis-platina (cDDP). Full oncological treatment was completed in 1983.

Retinoblastoma occurs primarily during childhood (80 %), the incidence is 1:18 000 of the new-borns. The main age of presence is between 1 and 2 years of age. The etiology is unknown. Probably, there is a genetic load connected to Rb 1 mutation.

The patient had no other systemic problems, he was in good health, he had no serious injuries, had just undergone the ordinary children's diseases, and he did not suffer from any allergies. He did not drink alcohol, did not smoke and take drugs. The patient did not use the bulbar prosthesis and he was very distressed about his facial disfigurement. The usual preoperative examinations, as well as the skull radiograph in semiaxial projection and magnetic resonance were obtained. According to the treatment plan were inserted 3 dental implants (Ankylos, Friadent). After their integration booting of the ball attachments and fabrication of orbital prosthesis with patrix/matrix system retention were used. The operation was done under general anesthesia with nasotracheal intubation. In March 2004, 2 implants were booted to the upper margin (diameter 3.5 mm, and length 8 mm) and 1 implant to the lower margin (diameter 3.5 mm, and length 9.5 mm) of the left orbit. Suturing material was Monofil. The operation lasted 65 minutes and was without any complications.

Healing of the wound was without an inflammatory process. Lincomycin (600 mg p.o.) provided an antibiotic covering. The fourth day after operation the patient was dismissed in good condition. Six months after implant placement and the healing period the prosthetic reconstruction began. Control semiaxial X-ray and magnetic resonance examination were made. Three ball attachments were booted to the implants. After that an impression of the anophthalmic socket with a stock acrylic resin tray designed for ophthalmic impressions was taken using the irreversible hydrocolloid (Kromopan 100, Lascod). Master cast was fabricated and composite resin plate (Duracryl, Dental) with 3 patrices was prepared. The

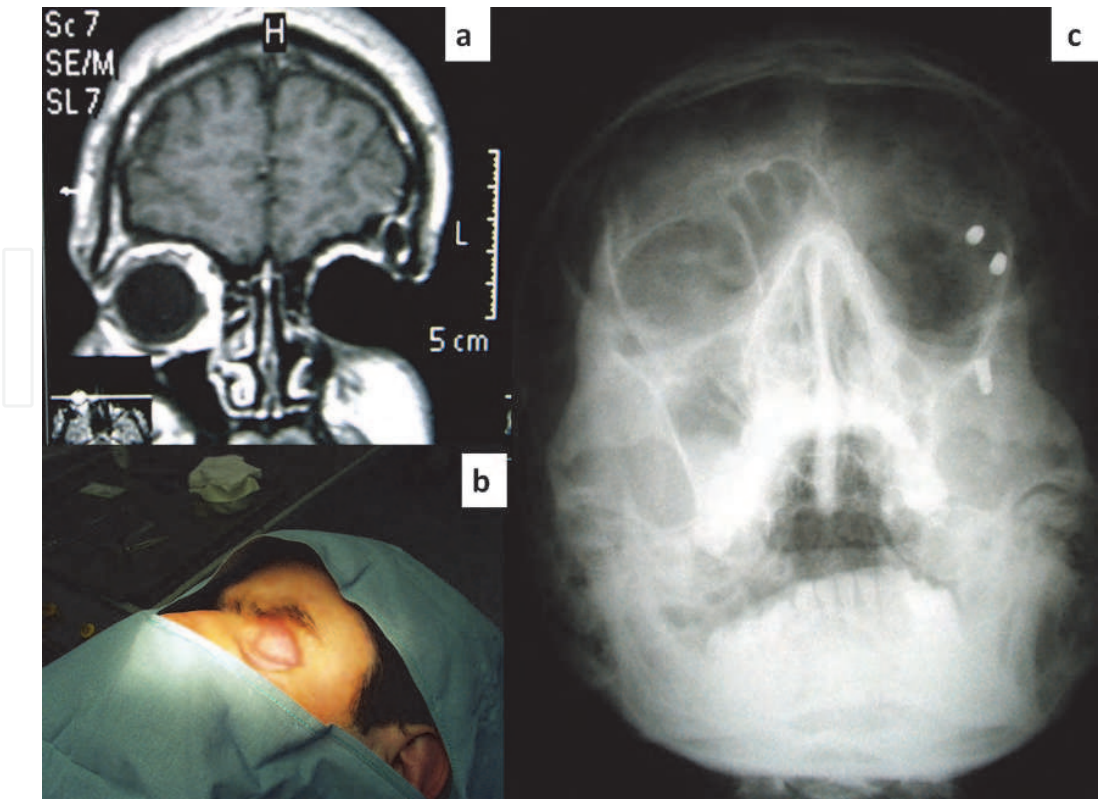


Fig. 3. Ocular prosthesis: a) CT before treatment; b) ocular area; c) implants insertion.

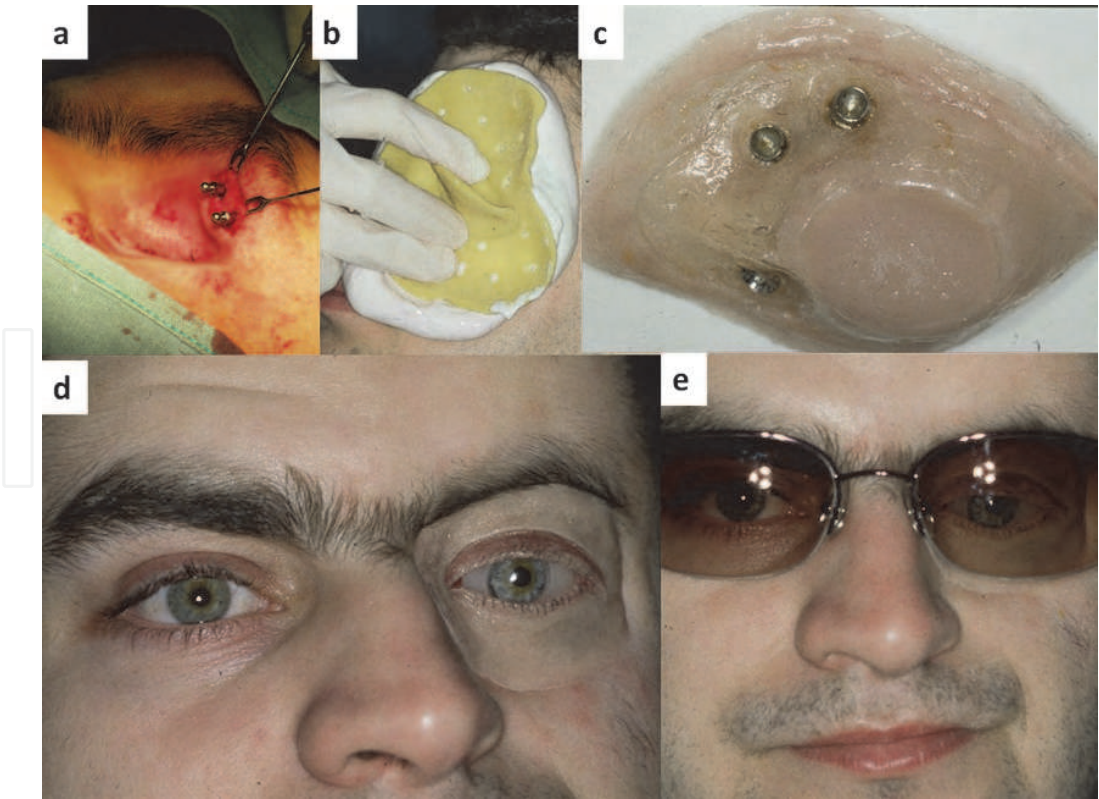


Fig. 4. Ocular prosthesis: a) implants insertion, b) impression; c) ball attachments and ocular prosthesis; d) prosthesis in situ; e) patient after reconstruction.

wax pattern was prepared and evaluated on the patient and finalized. The sculpting fitted the eye socket contours and lids configuration. After characterization was added, the process the ocular prosthesis with ocular bulbs, silicon and acrylic was finished (Multisil Epithetic, Bredent). Prosthesis form, coloration and texture must be as indiscernible from the surrounding natural tissues as possible. The completed eye was pumiced and polished and was inserted into the orbit. Glasses help to receive symmetry of the eye and face (Fig. 3, 4).

5. Auricular prosthesis

The indications for autogenously auricular reconstruction versus prosthetic reconstruction with osseointegrated implant-retained prostheses were outlined in Plastic and Reconstructive Surgery in 1994. The choice between the two remaining techniques, autogenously reconstruction and prosthetic reconstruction, depends more on the surgeon's training and tradition than on an analysis of which procedure is preferable in a given clinical situation. For example, most children with microtia in the United States are treated with autogenous techniques. In contrast, the same deformities in Sweden are more commonly treated with prosthetics. Patients with posttraumatic or postablative auricular defects are more often adults, and their defects differ from those of children with congenital deformities in several ways. First, the skin loss and scarring resulting from trauma or previous surgery may make standard autogenous reconstruction difficult. Second, the tragus is frequently preserved in the trauma/ablative patient, making the aesthetics of prosthetic reconstruction much more favorable. The presence of a tragus allows the anterior border of the prosthesis to be hidden, a major aesthetic benefit.

The auricular region was found to be the most dependable implant site; all potential auricular implant patients undergo a presurgical computed tomographic scan with radiographic stent markers in position. This allows for evaluation of the proposed bone sites in an attempt to maximize implant length. The mastoid air cells frequently pose logistical problems at the most inferior auricular implant sites, and occasionally implant position has to be recalculated. Exposure of the air cells at the time of implant placement does not appear to cause any detrimental effects. If there is adequate bone to provide stability, the implant may be left in position; otherwise, a new site will have to be found. The flange is a favorable feature in the auricular site, preventing accidental intrusion into the cranium and providing some initial stability for short implants. The use of three implants in the auricular region reduces the amount of cantilevering and provides a tripod effect for possible mechanical advantage. All implants are splinted together with a tissue bar, and retention is achieved with clips

Clinical report

A 45-year-old male patient missed his left ear during car accident, and was subsequently indicated for ear replacement with an auricular prosthesis (Fig. 5, 6).

The patient received the three implants in accordance with a two-stage surgical procedure. Screw-shaped titanium implants (Impladent, Lasak Ltd., Czech Republic) are inserted into the temporal bone using a delicate surgical technique and, after the implants have healed in, it is possible to penetrate the skin to establish a reaction-free percutaneous passage. During the first stage the implants were inserted into the bone surrounding the area with the craniofacial defect. After a previous computed tomography scan, coronal, axial and three-dimensional reconstruction images were used to measure the bone thickness in the mastoid

region (at least 6 mm). The patient went through the implant surgery under general anesthesia. A 4 mm longitudinal incision was made posterior to the external acoustic meatus and the temporal bone was exposed. The time taken for osseointegration was expected to be six months for implants inserted into the temporal bone.

The second stage consisted of thinning of the subcutaneous tissue, uncovering of the implants and attachment of abutments to the implants. This procedure included subcutaneous tissue reduction aimed at reducing the mobility between the implant and the skin. Healing caps were placed over the abutments and gauze soaked in ointment was wrapped around the healing caps to ensure good contact between the skin and the bone, and to prevent postoperative hematoma and swelling. The postoperative management plan included local hygiene instructions. The suture was removed after ten days and the patient did not complain of postoperative pain or complications during this period. The four weeks after the second stage, the prosthesis was constructed and attached to the implants.

Fabrication of the implant-retained prosthesis was started three weeks after abutment connection, which followed standard clinical and laboratory procedures. Retention was achieved by means of a bar-clip construction.

The fabrication of the implant-retained auricular prosthesis was based on shape and size of opposite ear. The right ear plaster model and image was prepared, the bar was cast and auricular prosthesis was made. The wax pattern was prepared and evaluated on the patient and finalized. The sculpting fitted the ear contours and configuration. After characterization was added, the silicon and acrylic ear was finished (Multisil Epithetic, Bredent). The completed ear was pumiced and polished and was inserted. The hairs help to receive symmetry of the eye and face.

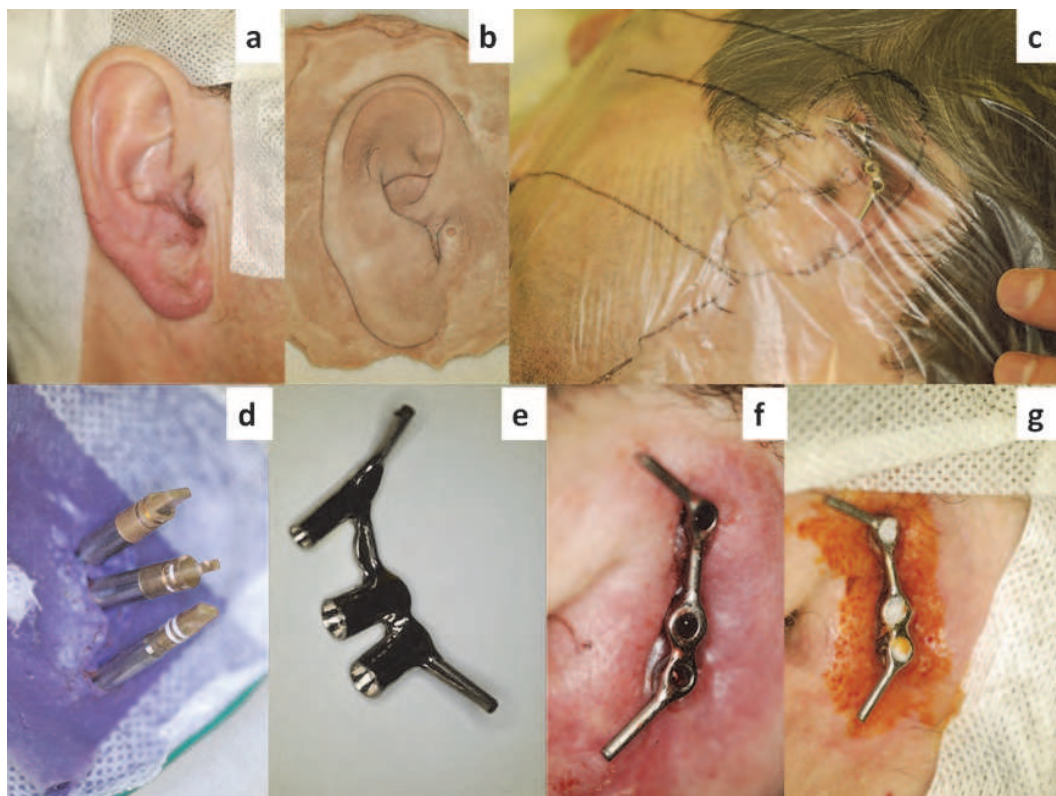


Fig. 5. Auricular prosthesis: a) healthy ear; b) plaster model; c) ear symmetry, d) polyether impression; e) bar with cantilevers, f) bar in situ, g) bar preparation

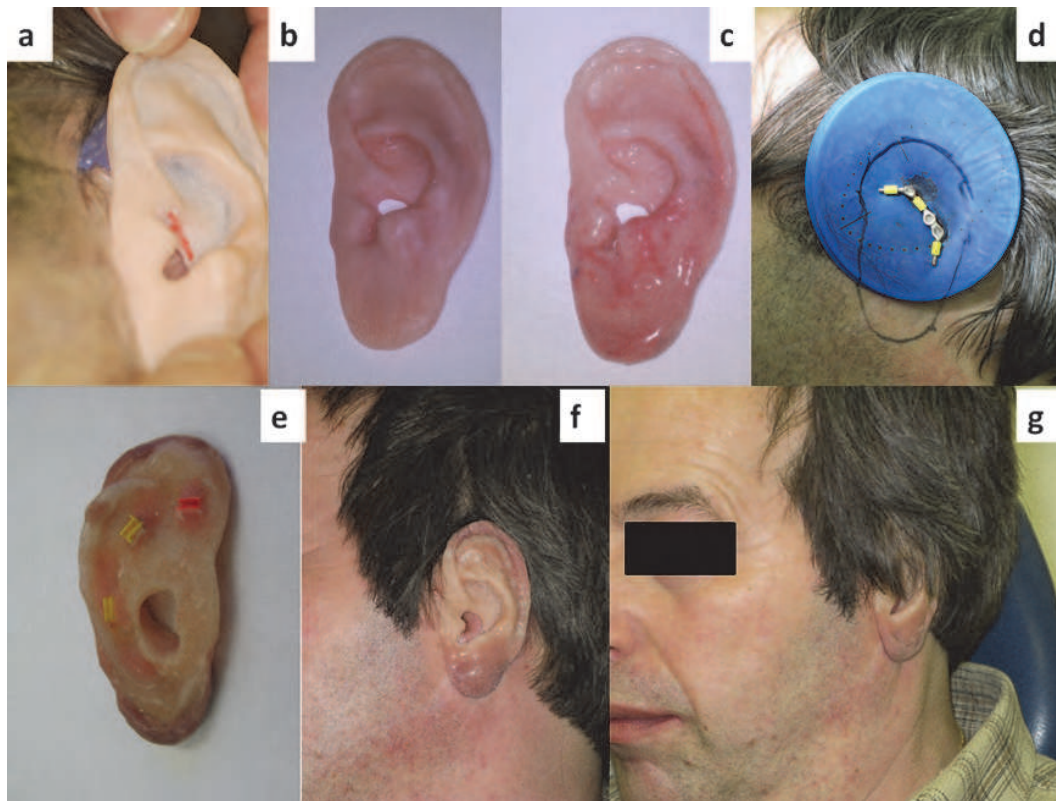


Fig. 6. Auricular prosthesis: a) position of future ear, b) ear preparation; c) coloration; d) bar in situ with clips; e) clips in situ; f) eye rehabilitation; g) patient after reconstruction.

6. Reconstruction of midfacial defects with implant insertion

The maxilla can be described as a geometrical structure with six walls (hexahedrium). Each wall is part of another anatomical structure in the face. The roof of the maxilla is the floor of the orbit and supports the ocular globe. The medial wall of the maxilla is the lateral wall of the nasal cavity and is part of the lacrimal system. Combining bone grafts with skin/soft tissue flaps simplifies reconstruction of the highly complicated three dimensional nature of the maxillary defect; the bone graft (vascularized or non-vascularized) is rigidly fixed in its appropriate position and the soft tissue flap (pedicled or free) with the skin islands is arranged separately in their own respective locations. Considering this simple approach and having in mind the relationship between volume and surface area requirements, the following are the most important issues that must be addressed with regard to reconstruction of each of the different maxillectomy/midfacial defects.

Osseointegrated implants may be used in several different prosthesis designs. Implants may be used to complete support, retain, and stability the denture; in this situation the implants bear the entire load of mastication. This type of denture, defined as implant-borne, can be removed only by a prosthodontist or dentist, is rigidly fixed to the implants, and does not contact alveolar surfaces. Alternatively, implants may be used to assist in retention of the denture but not bear the entire load of mastication. This type of denture, defined as implant-retained, is secured to the implants with a clip-bar mechanism but is not rigidly fixed to the implants. The majority of an implant-retained denture is in contact with the denture-bearing surface, and it is easily removed and replaced by the patient. Conventional dentures which do not involve the use of implants are defined as tissue-borne.

Clinical report

A 58-year-old woman lost her right maxilla after car accident. She was scheduled for a definitive fixed denture anchored to three osseointegrated implants loco 13, 14, 16 (Fig. 7, 8, 9). Her general medical condition (nephropathies) allows surgical reconstruction. The patient's facial defect and surrounding anatomical structures were analyzed in 3-D CT images. Microvascular iliac muscles and bone tissue transfer has been prepared for reconstruction of the palate, midface, and maxilla. Microvascular free tissue reconstruction allows the transfer of adequate amounts of soft tissue and bone in a single-stage procedure, without the limitations of pedicle length or flap geometry. Two titanium plates (10 mm) with 4 screws supported the position of tissues. After 6 month 3 implants Impladent STIO-BIO (Lasak ltd., Czech Republic) 3.7 mm (loco 13) and 5.1/ 16 mm (loco 14, 16) were inserted. Healing of the wound was without an inflammatory process. Dalacin (300 mg p.o., PFIZER) provided an antibiotic covering.

After 6 month integration the prosthetic reconstruction was prepared. The X-ray examination (panoramic radiograph) checked the grade of osseointegration. Until this time the implants fixtures were still covered by mucosa. Based on the implant size a suitable healing cap was attached and after 2 weeks the attached gingiva was formed. The preparation of an individual impression tray was the first prosthetic step during reconstruction when performing Brånemark bridge (veneered resin bridge). The alginate impression (Kromopan 100, Lascod) of the upper jaw is performed and a open individual custom tray from denture base resin was prepared in the laboratory. The open tray was

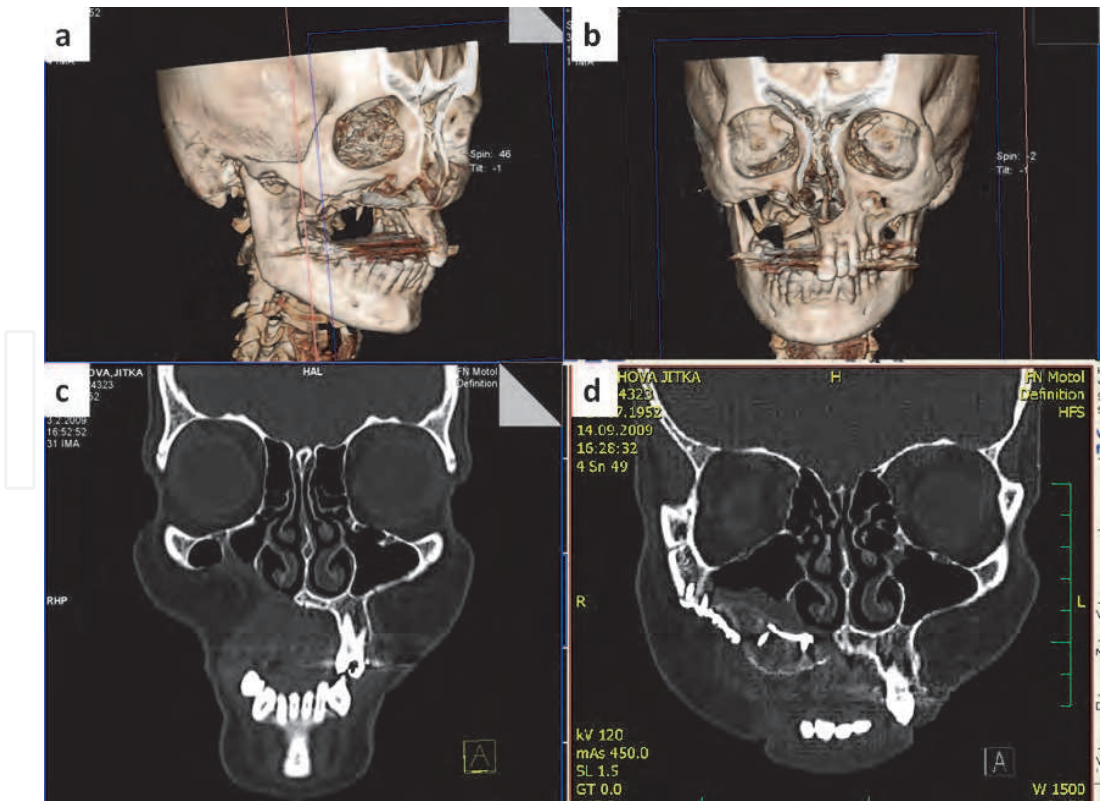


Fig. 7. Midfacial defect a) 3D CT reconstruction from lateral view; b) 3D CT reconstruction from frontal view; c) CT before reconstruction, d) CT after reconstruction.

perforated in the sites of the future abutments. The alginate impression in the opposite jaw bone was performed at the first visit and a plaster cast of the opposite dental arch was within prepared in the laboratory. Furthermore, a wax bite rim for determining of the intermaxillary relations is used.

The healing caps were unscrewed during the second visit and impression posts were screwed on using the special spines. The maxillary ridge was impressed using the polyether impression material (Impregum Penta Soft, 3 M ESPE), the posts were unscrewed and the impression was removed including the impression copings and spines. The laboratory analogs were attached. A dental technician filled the impression using the silicone gingival mask and created the master model using the plaster type IV (stone). He sealed the working models with the reconstructed maxillary position into the articulator. He attached the combustible impression copings on the laboratory analogues and finishes modeling the re-shape of the future construction. The titanium alloy (Grade 2, Orotig + Nd: YAG laser welding) and Cresco method were used to prepare the construction according to the instructions of the manufacturer.

Because the jaw bone was cicatrices and contained defects it was suitable to add not only hard but also soft tissues. As for the adjustment of the vertical maxillary relation, the construction was sectional with the addition of pink methylmetacrylate simulating marginal gingiva. After proving the metal framework, the bridge was completed to see whether it

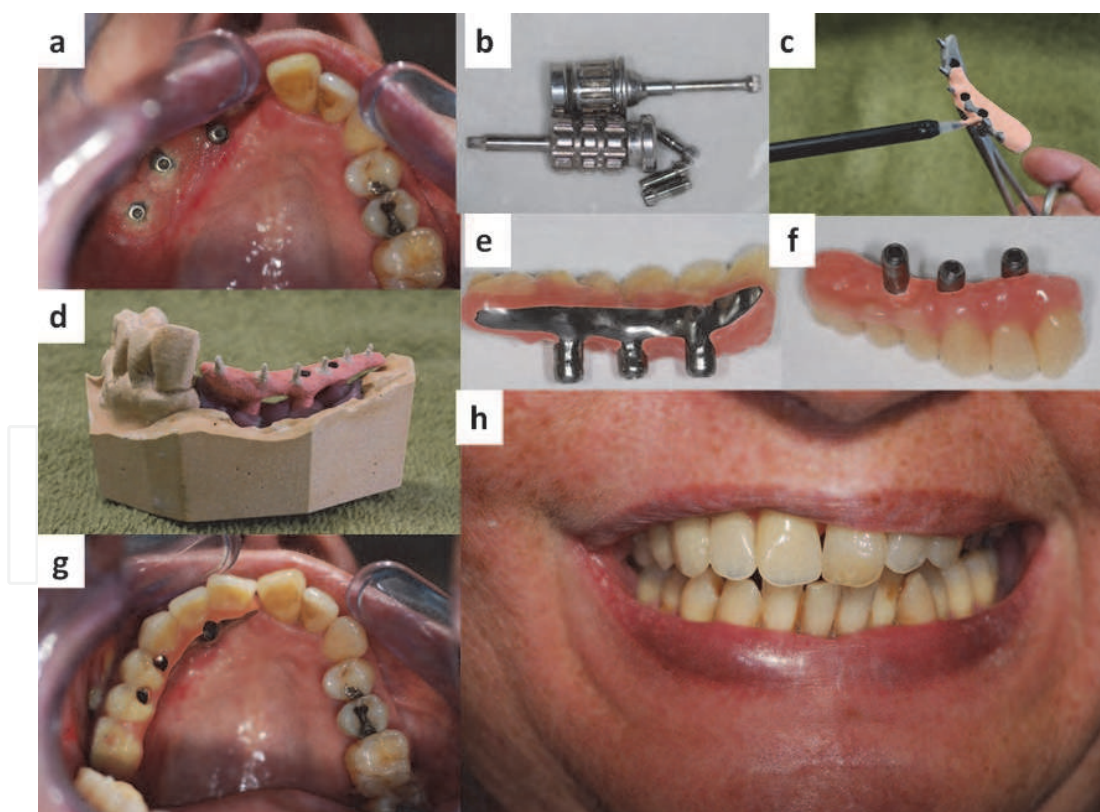


Fig. 8. Midfacial defect prosthesis: a) implant insertion; b) titanium screws and screw drivers; c) framework, d) framework before Branemark bridge preparation; e) implant supported denture – palatal view, f) denture – vestibular view, g) prosthesis in situ, h) smile line after therapy.

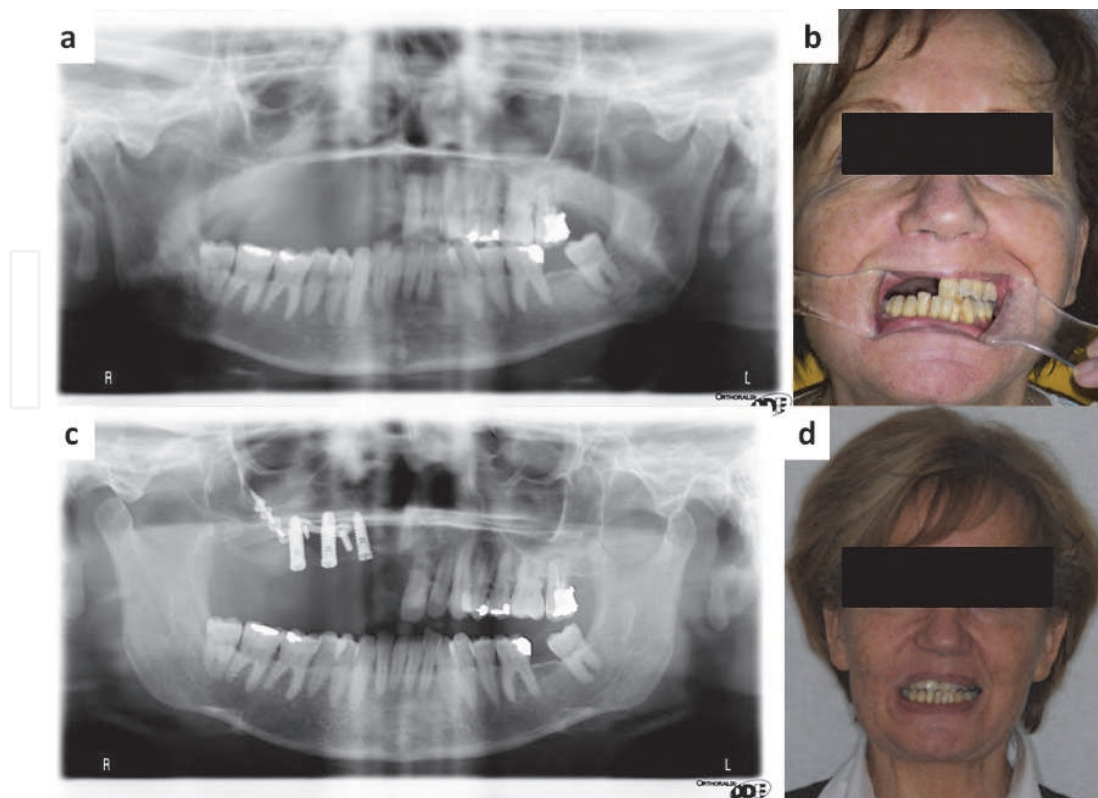


Fig. 9. Midfacial defect reconstruction: a) OPG before treatment; b) frontal view before therapy; c) OPG after reconstruction and implant insertion; d) 1-year recall

fulfilled the functional and aesthetic requirements. During the following few weeks (adaptation phase) the screw holes were closed using cotton pellets over the screw heads and glassionomer cement. The connection of the construction and implants should always be checked using an X-ray image.

7. Conclusion

Osseointegrated implants provide a viable option for treatment of patients needing a variety of orofacial prostheses. Implants can overcome many of the difficulties encountered in retaining large facial prostheses. Our findings indicate predictable high survival rates for implants in the auricular and piriform/nasal sites and a less favorable outcome in the orbital region, especially in irradiated sites.

The benefits magnetic implant insertion and facial prosthesis are following. The optimal stability of the prosthesis guaranteed the patient recovery of his social life. Three magnetic attachments are used in the framework positioned in the maxilla, glabella etc. The oral implants offered a wider surface for osseointegration. Magnet attachments ensure better surface stability than ball attachments while not obstructing or making epithesis handling more difficult for the patient. Dental bar is much more useful for auricular prosthesis due to surrounding muscles stress. Facial prosthesis using three dental implants is a method of choice in replacement of missing hard and soft orofacial tissues. Prosthesis form, coloration, and texture must be as indiscernible as possible from the surrounding natural tissues. Rehabilitation efforts can only be successful when patients can appear in public without fear

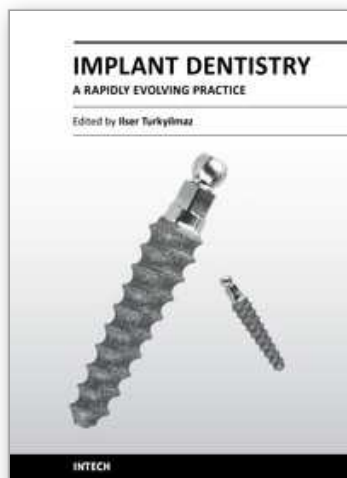
of attracting unwanted attention. Dental implants prosthesis support gives the patient confidence in society.

8. Acknowledgment

This research has been supported by the project IGA MZCR 9991-4 and FI-IM5/218.

9. References

- Taylor T. D. (Editor) (2000). *Clinical Maxillofacial Prosthetics*, Quintessence publishing, ISBN: 0-86715-391-1, Co, Inc. USA
- Brown JS, Shaw RJ. Reconstruction of the maxilla and midface: introducing a new classification. *Lancet Oncol.* 2010 Oct, Vol. 11, No. 10, pp. 1001-8. ISSN: 1470-2045
- Hollier LH Jr, Sharabi SE, Koshy JC, Stal S. Facial trauma: general principles of management. *J Craniofac Surg.* 2010 Jul; Vol.21, No. 4, pp. 1051-3. ISSN: 1536-3732
- Goiato MC, Nicolau EI, Mazaro JV, Dos Santos DM, Vedovatto E, Zavanelli AC, Filho HG, Pellizzer EP. Mobility, aesthetic, implants, and satisfaction of the ocular prostheses wearers. *J Craniofac Surg.* 2010 Jan; Vol. 21, No 1, pp. 160-4. ISSN: 1536-3732
- dos Santos DM, Goiato MC, Pesqueira AA, Bannwart LC, Rezende MC, Magro-Filho O, Moreno A. Prosthesis auricular with osseointegrated implants and quality of life. *J Craniofac Surg.* 2010 Jan, Vol. 21, No. 1, pp. 94-6. ISSN: 1536-3732



Implant Dentistry - A Rapidly Evolving Practice

Edited by Prof. Ilser Turkyilmaz

ISBN 978-953-307-658-4

Hard cover, 544 pages

Publisher InTech

Published online 29, August, 2011

Published in print edition August, 2011

Implant dentistry has come a long way since Dr. Branemark introduced the osseointegration concept with endosseous implants. The use of dental implants has increased exponentially in the last three decades. As implant treatment became more predictable, the benefits of therapy became evident. The demand for dental implants has fueled a rapid expansion of the market. Presently, general dentists and a variety of specialists offer implants as a solution to partial and complete edentulism. Implant dentistry continues to evolve and expand with the development of new surgical and prosthodontic techniques. The aim of Implant Dentistry - A Rapidly Evolving Practice, is to provide a contemporary clinic resource for dentists who want to replace missing teeth with dental implants. It is a text that relates one chapter to every other chapter and integrates common threads among science, clinical experience and future concepts. This book consists of 23 chapters divided into five sections. We believe that, Implant Dentistry: A Rapidly Evolving Practice, will be a valuable source for dental students, post-graduate residents, general dentists and specialists who want to know more about dental implants.

How to reference

In order to correctly reference this scholarly work, feel free to copy and paste the following:

Tatjana Dostalova, Jiri Kozak, Milan Hubacek, Jiri Holakovsky, Pavel Kříž, Jakub Strnad and Michaela Seydlova (2011). Facial Prosthesis, Implant Dentistry - A Rapidly Evolving Practice, Prof. Ilser Turkyilmaz (Ed.), ISBN: 978-953-307-658-4, InTech, Available from: <http://www.intechopen.com/books/implant-dentistry-a-rapidly-evolving-practice/facial-prosthesis>

INTECH
open science | open minds

InTech Europe

University Campus STeP Ri
Slavka Krautzeka 83/A
51000 Rijeka, Croatia
Phone: +385 (51) 770 447
Fax: +385 (51) 686 166
www.intechopen.com

InTech China

Unit 405, Office Block, Hotel Equatorial Shanghai
No.65, Yan An Road (West), Shanghai, 200040, China
中国上海市延安西路65号上海国际贵都大饭店办公楼405单元
Phone: +86-21-62489820
Fax: +86-21-62489821

© 2011 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike-3.0 License](https://creativecommons.org/licenses/by-nc-sa/3.0/), which permits use, distribution and reproduction for non-commercial purposes, provided the original is properly cited and derivative works building on this content are distributed under the same license.

IntechOpen

IntechOpen