Maxillofacial prostheses: a subspecialty that we need to know a general idea about it.

Maxillofacial prostheses is defined as the art and science of dental practice which involves the functional and esthetic rehabilitation by artificial means of intra oral and paraoral structures.

Objectives:

1. To improve the esthetics of the patient
2. To restore the function, like obturators (intraoral) or those which replace the nose or ears.
3. To raise the morals of the patients, and improve their self esteem

If we compared between replacing the lost structures with surgery or maxillofacial prostheses, we find that it depends on the case itself.

In cases of tumor, the maxillofacial prostheses is mostly the preferred method of replacing lost structures. This is especially true for cases where the resection is not completed and the type of tumor is recurrent because we need to monitor the surgical site for recurrence and the defect is large (the bone graft won’t be enough to replace such large defects). Moreover, when the patient is undergoing radiation, thus surgery is contraindicated due to the risk of osteoradionecrosis. Therefore, the solution will be the use of maxillofacial prostheses.

Maxillofacial prostheses is classified into two main categories:

1)Para oral prostheses

2) intra oral prostheses

 Para oral defect is divided into orbital auricular and nasal defects.

The material that we need for the maxillofacial prostheses depends on the site of the defect. And no ideal material is found.

An ideal material will have ideal biological, physical and mechanical and processing characteristics.

The ideal biological characteristics:

1. Non allergic
2. Cleansable with disinfectants, exposed to environment
3. Color stability properties , resistant to discoloration
4. Inert to solvents and skin adhesives, sometimes we need adhesives to retain the prostheses
5. Resistant to micro organisms growth, the dirt and skin secretions are filled with bacteria

Ideal physical and mechanical properties:

1. High edge strength, not differentiate between the skin and the prostheses, a continuation between them. To be thin
2. Softness , compatible to tissues
3. translucent
4. High tear strength

Ideal processing characteristics :

1. Chemically inert after processing, no continuation of chemical reaction
2. Ease of intrinsic and extrinsic coloring to match the color of the patients skin
3. Commercially available colorant
4. Long working time
5. We need it to be color stable, the color must last

Materials used for facial prostheses:

1. Methyl methacrylate
2. Polyurethane
3. Silicone
4. Methyl methacrylate

Desirable properties:

1. Durable
2. Color stable, intrinsic coloration good cosmetic result.
3. Adjustability, can be relined or repaired, correcting the edges

Undesirable properties:

1. Rigid , differs from the tissues surrounding it
2. Water sorption
3. Increased weight by 0.5% this makes it heavier after a period of time therefore its difficult to retain the heavy prostheses
4. Silicone: there are different materials that are made of silicone

Desirable properties:

1. Flexible
2. Adaptable to both intrinsic and extrinsic coloration, so what we actually do is a base color during processing and then customization during insertion
3. Acceptable initial appearance

Undesirable properties:

1. Excessive shrinkage
2. Plasticizer migration, which initially gives the silicone its softness properties. So it becomes rigid
3. Loss of coloration, discoloration
4. Edges tear easily, the thin edges start tearing

The prostheses is either worn with glasses or an adhesive is used to stick it with the skin

1. Poly urethane

Desirable properties:

1. They can be made elastic without compromising strength not like silicone
2. Can be colored extrinsically and intrinsically
3. Superior cosmetic results compared to acryrl and silicone. Gives a more natural appearance

Undesirable properties:

1. Difficult to process, the precision of the measures is difficult to attain which affects the results.
2. Poor compatibility with adhesive therefore glasses are used
3. No color stability
4. Discolors with UV light

Good luck ☺