Practical anaesthesia equipements

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Anesthesia face mask and angle piece

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Mask

Anesthesia Face masks and angle pieces

Anesthesia Face masks is designed to fit the face anatomically. It comes in different sizes to fit patients of different age groups (from neonates to adults). It is connected to the breathing system via the angle piece. Made of silicone rubber or plastic. Their design ensures a snug fit over the face of the patient.

*Masks are available in variety of sizes and shapes depending on patient's age and size. The sizes available are 0, 1, 2, 3, 4 and 5.

* Face masks are having a two types: (1) reusable masks (2) disposable masks.






Components:

1. The body of the mask which rests on an air-filled cuff.

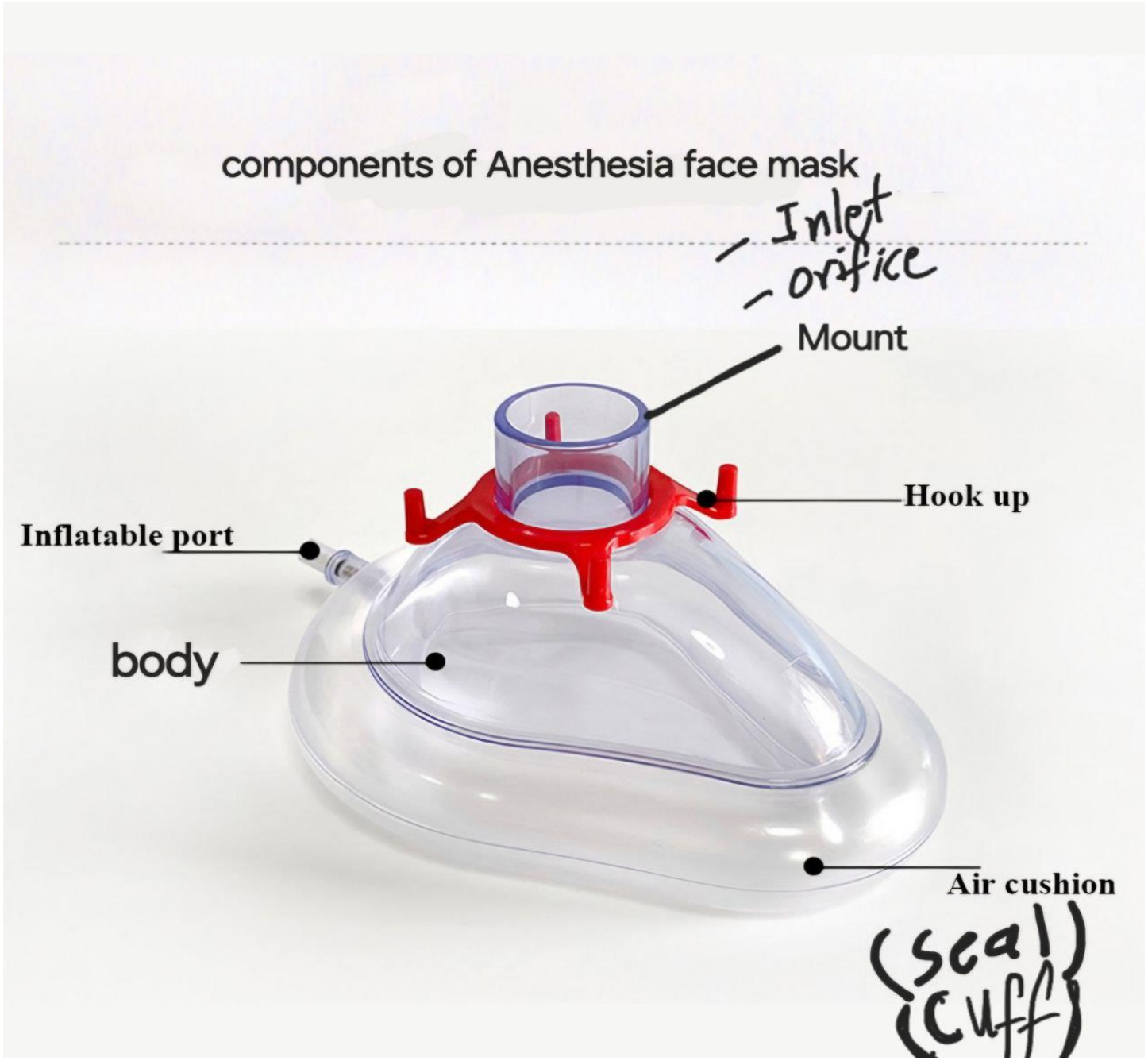
→ Some paediatric designs do not have a cuff, e.g. Rendell–Baker

2. The proximal end of the mask has a 22-mm inlet connection(mount) to the angle piece.

3. Some designs have clamps for a harness to be attached.

4. Seal or edge may be anatomically shaped and fitted with a cuff or flap.

5. inflation valve



➡The angle piece has a 90° bend with a 22-mm end to fit into a catheter mount or a breathing system.



Mechanism of action

1. They are made of transparent plastic. Previously, masks made of silicon rubber were used. The transparent plastic allows the detection of vomitus or secretions. It is also more acceptable to the patient during inhalational induction. Some masks are 'flavored', e.g. strawberry flavor.
2. The cuff helps to ensure a snug fit over the face covering the mouth and nose. It also helps to minimize the mask's pressure on the face.

3. The design of the interior of the mask determines the size of its contribution to apparatus dead space. The dead space may increase by up to 200 mL in adults. Pediatric masks are designed to reduce the dead space as much as possible.

Problems in practice and safety features

1. Excessive pressure by the mask may cause injury to the branches of the trigeminal or facial nerves.

2. Sometimes it is difficult to achieve an air-tight seal over the face. Edentulous patients and those with nasogastric tubes pose particular problems.

3. Imprecise application of the mask on the face can cause trauma to the eyes.

4. Larger size masks increase dead space .

Specific Types of face mask :

1. Anatomical face masks

The anatomical face masks has a cushion that's anatomically correct patient face. Has inflatable cuff seal or malleable rubber body.





2. Rendell-Baker-Soucek Mask (A)

It has a triangular body, this mask has low dead space. useful in pediatric patients. can be used in patient with a tracheostomy.

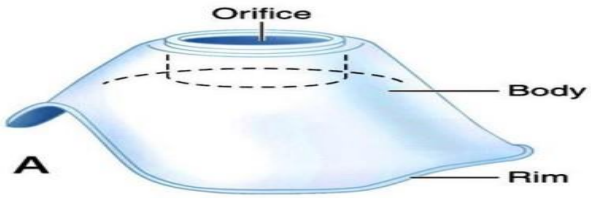
3. Endoscopic Masks (B)

specifically designed to allow mask ventilation during endoscopic procedures elastic diaphragm opening designed for the passage of a fiberoptic bronchoscope. This technique allows to ventilate the patient during procedure.

4. Dental Masks or nasal Inhalers masks (C)

These masks are used during dental chair anesthesia.

5. Masks for Noninvasive Positive Pressure Ventilation or CPAP (D)











Goldman nasal inhaler

Techniques for face masks application

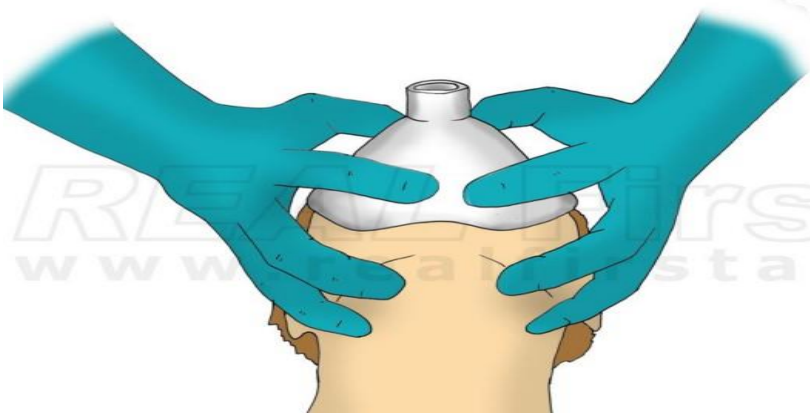
An appropriate size face mask is important for a tight seal on the patient's face allowing good mask ventilation. An ill-fitting mask will demand more pressure on patient's face leading to cramps in the hands of the user after some time. There are several methods of holding a mask to maintain an open airway and a tight seal :

1. One-Hand Technique In one-hand technique , the thumb and index finger of the left hand are placed on the mask body to press mask downward. The remaining three fingers are placed on the mandible with little finger below the angle of the mandible (to lift the mandible for proper fitting) avoiding the soft tissue. This is known as SINGLE HAND C- E technique". Additional downward pressure, if needed is then exerted by the anesthetist's chin on the mask. Care should be taken to prevent pressure on the eyes.

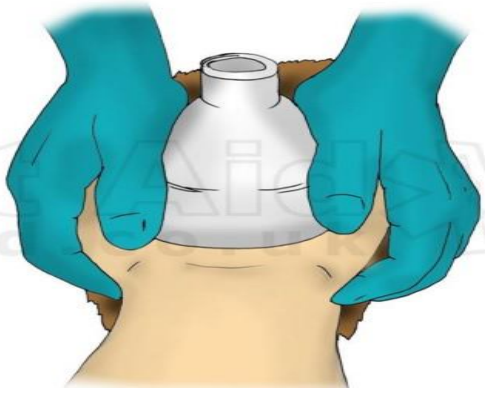


2. Two-Hands Technique

Two-hands method is used for difficult airway . IN DOUBLE HAND C- E The thumbs and index fingers are placed on either side of the mask body. Remaining fingers of both the hands are placed on either side under the mandible. The mandible is lifted and the head extended. While in DOUBLE HAND VE thumbs and thenar eminence placed over each side of mask and the rest four fingers pull jaw upward. I case of two-hand technique, second person is needed to ventilate the patient while the airway is maintained by first person..



Double hand C-E



Double hand V-E

Difficult Face Mask Ventilation

Following are few of expect difficult mask ventilation:

1• Edentulous patients

2 • Facial burns

3 • Male patients have higher incidence of difficult mask ventilation

4 • Bearded patient

5 • Obese patients, history of snoring

6• Sometimes in anticipated difficult intubation, e.g. higher Mallampati classification, receding mandible, micrognathia, etc.

NOTE:

If it is difficult to maintain airway with mask and requires lot of manipulations. In such cases laryngeal mask airway LMA is a good option .

Face Masks Complications

1. Skin Allergy
2. Nerve Injury
3. Gastric Inflation
4. Eye Injury and Skin Necrosis
5. Cervical Spine Movement
6. Environmental Pollution
7. User Fatigue
8. Jaw Pain

THANK YOU