

NEW METHOD OF TEMPORAL OPERATIVE CATHETERIZATION OF TRACHEA AND BRONCHIA OF CHILDREN

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There are two methods of temporal catheterization of trachea and bronchia according to the available bibliographical data: 1) Bronchoscopic tubus is inserted in trachea; the latter is either punctured through the skin or only a little skin incision is cut, a troakar is placed and then follows the catheterization itself. 2) Bronchoscopic tubus inserted in trachea; long incision in the skin reaching trachea in depth; pretracheal space is free for visual control of troakar puncture and catheterization.

The aforementioned two methods show certain disadvantages:

a) Blind puncture, specially in new-born babies and little children, due to their limited tracheal space possibilities, can often cause heavy damages of large vessels. This is additionally dangerous in children with vessel abnormalities.

b) Troakar with smallest size causes big holes in trachea (specially in new-born babies).

c) Drill in trachea is made under pressure which can possibly damage the cartilaginous rings.

d) Lack of troakar-stop makes very probable its hollowing to the tracheal back wall and causing certain wounds there.

e) Troakar drill in trachea is always larger in sizes than the apparatus diameter; thus a subdermal emphysema, catheter fall or its aspiration are all very often consequences.

f) Manipulations in trachea during operation with inserted bronchoscopic tubus and its up and down movement can cause definite damages in upper respiratory tracts.

The suggested new method presented in our work eliminates all aforementioned disadvantages.

Method

The patient is placed backward onto the operative table; his hands are lifted up, his head — in hyperextension. Nose-top-point, middle jugular fossa point and abdominal linea alba are obligatory in one line. In this position the trachea is nearest to the skin where the incision must be cut.

Operation is carried out under a mask anaesthesia.

5—7 mm long vertical opening is cut in the exact middle line under the lower margin of thyreoidal gland. Muscles are eked aside by 2 ordinary bicogged subdermal ecartoers (extensors) with blunt edges; trachea is fixed between both extensors.

Trachea is drilled by our construction set of spear-knives (fig. 1, 2) in the region of intercartilaginous membrane; the drill is performed by smallest

size knife puncture-likely. With rotative movement, similar to corkscrew, but applying no pressure on tracheal wall, we widen the hole-opening by using next size knives to the required diameter. The knife-top end is archwisely thinned, thus making holes without any pressure on tracheal wall. The knife-stop prohibits the wounding of the oposite wall.

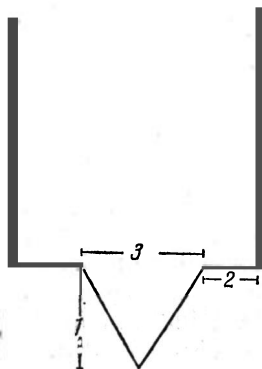


Fig. 1: Scheme of the operative knife in face projection: 1) Driller. 2) Knife-stopper. 3) Diameter of corresponding tracheal opening

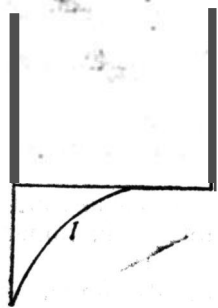


Fig. 2: Scheme of the operative knife in transverse projection: 1) Cutting surface

Catheter diameter is slightly wider compared to that of tracheal opening but it does not extend intercartilaginous distance opposing no pressure over cartilaginous rings themselves. All that allows free catheter inserting, no tension in the membranes, well tightened catheter surface to opening's walls.

Muscles are adapted by 2 cat-gut stitches in the skin.

After operation a bronchoscopic tubus is applied in the tracheal space. The catheter end is pegged and then inserted in the necessary bronchi or just left in the trachea at recommended height.

The temporal operative catheterization of trachea and bronchia by using our method has the following advantages:

1) No bronchoscope is necessary before catheterization which:

shortens the manipulation time and anaesthesia period;

allows the most suitable optional position of the patients' heads for a proper operative intervention;

makes thrice less the duration of bronchoscopic manipulation, thus positively effecting over the hindered and limited postbronchoscopic complications.

2) The tracheal opening made by application of our construction set of spear-knives allows:

drilling of trachea under no pressure;

preservation of back tracheal wall (no wounds due to knife-stops);

well tight catheter surface to the opening wall (no subdermal emphysema, aspiration or catheter fall).

All aforementioned advantages provide no operative risk and postoperative complications.

We have performed 17 tracheal and bronchial catheterizations of children (age between 3 months and 5 years) with acute purulent-destructive lung and pleural diseases. No complications were reported neither during

the catheterization itself, nor after that.

We apply French plastic urethral catheters which have the following qualities: sterility, necessary rigidity of inserting, excellent X-rays contrast, blunt and rounded edges, preliminary marked length portions, well endurable capacity in human organism. Children accept the catheters without any complaints.

**НОВЫЙ МЕТОД ОПЕРАТИВНОЙ ВРЕМЕННОЙ КАТЕТЕРИЗАЦИИ ТРАХЕИ
И БРОНХОВ В ДЕТСКОМ ВОЗРАСТЕ**

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Р Е З Ю М Е

Авторы описывают собственный метод оперативной временной катетеризации трахеи и бронхов в детском возрасте, который применялся на 17 детях в возрасте от 3 месяцев до 5 лет. Избегается необходимость введения бронхоскопического тубуса в трахею для протекции прободения трахей. Все это в сочетании с применением сконструированного авторами набора копиевидных ножей практически сводит на нет как оперативный риск, так и послеоперативные осложнения. Не было отмечено никаких осложнений при проведении самой катетеризации; их не было и когда катетер находился в трахее и бронхах, как и после его выведения.