THE CASE OF THE URGENT TRACHEOSTOMY IN PATIENT WITH RARE CONDITION – PRE-ECLAMPSIA

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PRIKAZ SLUČAJA URGENTNE TRAHEOSTOMIJE KOD RETKE INDIKACIJE – PREEKLAMPSIJE

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ABSTRACT
Tracheostomy is surgical method which provides opening of the front wall of trachea with the aim of establishing breathing, and often saves life of the patient in danger. According to the work conditions and emergency degree, it can be divided into surgical and urgent. Indications for tracheostomy are classical and extensive, including preeclampsia. There are only several cases where urgent tracheostomy was carried out in gravid woman having preeclampsia, but the case with the twin pregnancy was not described. The aim of this work is to present a case of the patient with twin pregnancy, preeclampsia and the acute respiratory insufficiency where the urgent tracheostomy was carried out because of the epiglottis swelling and an-epiglottic folds, and later on the Caesarean section. The mother and the babies recovered successfully, and mother was de-cannulised later.

Preeclampsia edema, which leads to acute respiratory weakness, is a result of brain edema caused by the cerebral autoregulation loss, while the larynx edema and the lung edema speed up acute respiratory insufficiency. Factors that make urgent tracheostomy more difficult at these patients are anatomic features of the feminine trachea, especially softness and non-expressiveness of tracheal rings. Urgent tracheostomy is rarely indicated at preeclampsia. Team work and cooperation between gynaecologist, anaesthesiologist and otorhinolaryngologist are necessary for the successful treatment of these patients.

Key words: emergency treatment, tracheostomy, pre-eclampsia, laryngeal edema.

INTRODUCTION
Tracheostomy is surgical method of the opening of the front wall of trachea with the aim of establishing breathing at the acute respiratory insufficiency. It often saves patient’s life. In that way tracheostomy is formed through which the tracheal cannula is placed. According to the place, conditions and urgency in which it is carried out, it can be elective or urgent. The difference between them is that with the urgent tracheostomy the principles of asepsis aren’t taken into account, and it is carried out with handy objects and instruments without the careful dissection.(1).

Indications for tracheostomy are classical and wide. Preeclampsia, as one of the widened indications, is stated only one author (2).

There are only several cases where the urgent tracheostomy was carried out with gravid woman having pre-eclampsia, but there wasn’t a case with the twin pregnancy.

THE PATIENT
Twenty –year – old patient S. K was admitted to Gynaecology Clinic of the Clinical Center in Kragujevac because of preeclampsia and the first, twin pregnancy at the seventh month of gestation. Family anamnesis was negative at hereditary diseases. Family anamnesis was negative at the allergy on medicines, nutritive and inhalatory allergens. The patient was having breathing difficulties and classical symptoms of preeclampsia: hypertension 145/110 mm Hg, proteinuria, Esbach = 0.1 g/l with hypoproteinemia, serum albumen = 31 and soft tissue swelling. The signs of metabolic acidity were also found, pH = 7.19, increased partial pressure of carbon dioxide, pCO₂ = 8.3kPa, signs of secondary anaemia, red cells = 3.5X10¹²/L, hemoglobin = 96.4 g/L.

During the second day at hospital, the patient was having more and more breathing difficulties, while cardiotocogram was showing signs of intra-uterine suffering. Gynaecology team decided to carry out Caesarean section. In the operating room, after giving barbiturates to the patient, neither anesthesiologist nor the whole team of anesthesiologists could carry out orotracheal intubation. They decided to have an urgent otorhinolaryngology consultation.

Otorhinolaryngologist came to the operating room and after indirect laryngoscopy, he found out pale, doughy epiglottic edema and ari-epiglottic folds, so he indicated urgent tracheostomy. Oxygen saturation was 50 with a tendency of further failure before the intervention. Within a minute, otorhinolaryngologist carried out the
intervention and placed a plastic cannula with the cuff number 36. During the intervention, the principles of asepsis, as well as careful dissection, which are characteristics for the elective tracheostomy, weren’t taken into account because of the urgency of the intervention. During the intervention, and due to the shock state, the bleeding was scarce and the feminine trachea was soft, without the possibility of palpating tracheal rings. An anesthesia apparatus was connected to the cuff cannula and the oxygen saturation grew to 98, so the signs of the acute respiratory insufficiency were removed. Team of gynaecologists continued the intervention by carrying out the Caesarean section, and the patient gave birth to a girl, weighing 2700g with the Apgar score 8, and only a few moments later, a boy, weighing 3000g with the Apgar score 8. The mother and the babies recovered successfully during the post-operation period. During the seventh post-operation day, when the edema of epiglottis and ari-epiglottic folds disappeared, the process of de-cannulation began. The process of gradual de-cannulation was completed within 4 days by removing the tracheal cannula. The mother and the babies were discharged from the Clinical Center at the 13th post-operation day, feeling well and recovered.

**DISCUSSION**

Mechanism of the acute respiratory insufficiency appearance at pre-eclampsia depends on two pathogenic mechanisms. The first, central mechanism is based on the vasogenic edema, cerebral vasoconstriction or vasospasm, hypertensive encephalopathy, cerebral edema, cerebral hemorrhage and metabolic encephalopathy, which leads to the central inhibition of respiratory function (3). The second pathogenic mechanism gives importance to laryngeal edema (4), as a part of generalized tissue edema which increases the acute respiratory insufficiency. Generalized tissue edema appears as a result of hypoproteinemia which is preceded by proteinuria (5–7). Lungs edema together with cerebral edema (8) is an extra pathogenic mechanism, in which decreased lungs function is of great importance. Probably both pathogenic mechanisms (3–8) are responsible for the appearance of the acute respiratory insufficiency at pre-eclampsia. Some authors (9) consider this type of edema as a separate entity of the larynx edema in gravidity as laryngopathia gravidarum. Faracks gives the example of two gravid women, who were admitted to the Intensive care unit because of the acute respiratory insufficiency caused by epiglottis and ari-folds edema. An urgent tracheostomy was carried out at these two patients, and during this intervention, Faracks noticed a thin, soft trachea. According to it, he comes to a conclusion that one of the factors that makes this type of intervention difficult is the type of trachea described above (10). This type of feminine trachea with non-expressed tracheal rings was present at our patient, but scarce bleeding made the urgent tracheotomy easier. Several cases of the urgent tracheostomy at gravid women with pre-eclampsia have been described in the literature so far. This is the first case of the urgent tracheostomy at the gravid woman with pre-eclampsia and twin pregnancy which was described. Pre-eclampsia at the gravid woman with twin pregnancy and a need for the urgent tracheostomy hasn’t been described in the literature so far. Mechanism of the appearance of the acute respiratory insufficiency is multiple and depends on cerebral, laryngeal and lung edema. When taking care of these patients, team work of gynaecologists, anesthetiologists and otorhinolaryngologists is necessary.

**REFERENCES**