SVIII4: EMPYEMA IN 33 CHILDREN: AD-VANTAGES OF VATS

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Background Empyema is a complication of pneumonia in children. The natural process of organization provides for three consecutive stages: exudative (stage 1), fibrinopurulent (stage 2) and organized (stage 3). In the last few years, an increase in the number and severity of pleural effusions has been observed but there is still lack of consensus on the best approach and surgical timing. We present our series of patients with empyema treated by Videao Assisted Thoracoscopic Surgery (VATS).

Materials and methods Between January 2008 and January 2017 we performed VATS in 33 patients with pleural empyema, aged between 18 months and 13 years. We collected the following data: demographic, empyema stage, microbiological results, imaging, medical therapy, surgical details, post-operative complications and follow-up. All patients were referred from other Institutions; they were submitted to standard Chest XRays; pulmonary US and CT scan. According to the imaging the empiema was classified : stage 2 in 4 cases and stage 3 in 29. A fibrinolitic therapy was initially performed in stage 2, primary VATs in stage 3.

Results All the 31 patients require VATS, also those previously unsuccessfully treated with Urokinase for 48–72 hours. Six out of 31 presented a tremendous pattern of necrotizing pneumoniae involving 1 or 2 pulmonary lobes with parenchymal cavitation. The VATS was performed as a second therapy in 10/33cases.

VATS was realized with an operative one-trocar in 31 and with 2 trocars in 1 and 3 trocars in another one. The procedure was completed thoracoscopically in all cases without conversion, no intraoperative complications occurred, no parenchymal resections were performed The surgery was without bleeding, but 15 cases required blood transfusion due to the infection and anemia . One or 2 chest drains (CT) were left in place for a mean time of 7 days (range 4-15 days). CT remained in place for a longer period in the 6 patients who presented pulmonary cavitation , nevertheless none of them required a secondary surgical resection. At a mean follow-up period of 3 months all the patients presented a complete recovery of their lung at US and chest XRays.

Conclusions Historically surgical treatment of empyema consisted of open thoracotomy with decortications. Nowadays the gold standard remained undefined; the possibilities include medical therapy and the insertion of CT with or without fibrinolytics or VATS.

It seems that 4-day limit between diagnosis and surgery is a significant prognostic factor. Moreover the success of VATS versus CT insertion depends on the stage of the disease. In particular stage 1 empyema with respiratory symptoms and some cases of stage 2, would require chest drain and fibrinolysis for 48 hours. Stage 3 empyema and stage 2 with a 3-4 days long illness should be treated by primary VATS.

The early thoracoscopy decreases the length of hospital stay and the duration of post-operative fever and permits to preserve the parenchyma.

VATS yields excellent results in case of stage 2 and 3 pleural empyema. The procedure is safe and effective with few complication rate. When promptly and properly performed, it avoids invasive procedures such as wide parenchymal resections. However it should be performed by experienced surgeons in order to obtain the best results.

Key words VATS, empyema