

## CASE REPORT

# Anesthesia for Trans Sternal Thymectomy: Modified Non-muscle Relaxant Technique

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**A**nesthesia for thymectomy in myasthenia gravis is challenging. Early surgical management is now considered to be an important therapeutic intervention for most of the patients of myasthenia gravis. The anesthetic experience of that technique is quite large. It involves either muscle relaxant or non-muscle relaxant techniques. However, the literature is deficient of standard anesthetic technique for thymectomy. Therefore we present in this report a modified non-muscle relaxant technique for thymectomy. We report one case with thymectomy under general anesthesia using fentanyl and propofol for induction and endotracheal intubation using non-muscle relaxant technique. The intubating, intraoperative and postoperative conditions were excellent. **KEY WORDS: THYMECTOMY, SURGERY, NON-MUSCLE RELAXANT ANESTHESIA.**

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## 1. INTRODUCTION

Myasthenia gravis is an autoimmune disorder with an estimated prevalence of 1 in 20,000 (1). The disorder affects females more than males, usually in their third decade and is frequently associated with morphological abnormalities of the thymus. Myasthenia gravis (MG) is an autoimmune disease characterized by release of antibodies against acetylcholine receptor at the neuromuscular junction (1, 2). The techniques of anesthesia for thymectomy in myasthenia gravis could be either with or without muscle relaxants. That warrants revisiting and modifies our anesthetic technique. This report will focus on the modified non-muscle relaxant anesthetic technique for trans sternal thymectomy in patient with myasthenia gravis.

## 2. CASE PRESENTATION

A 23 year-old female, body weight 54 kg, does not smoke or drink alcohol, known to have myasthenia gravis.

The diagnosis of myasthenia gravis was made based on the severity of her symptoms and laboratory findings. She had generalized muscle weakness. The patient was scheduled for trans-sternal thymectomy and preanaesthetic evaluation was carried out. Preoperatively she was treated in Clinic of Neurology, by neurologist, with corticosteroids, pyridostigmine bromide, H<sub>2</sub> blockers, potassium preparations, with marked improvement of her symptoms. Her preoperative laboratory investigations and ECG were within normal limits. Chest CT scan showed in the upper mediastinum, in retrosternal area hyper density with dens metric values of the solid tissue. One dose of plasma (250 ml) was administered preoperatively. On arrival in the operation theatre intravenous line was secured with 16G cannula. Monitoring included, non-invasive monitoring of blood pressure, ECG, pulse oximeter, expiratory CO<sub>2</sub>.

Patient was preoxygenated with

100% O<sub>2</sub> over three minutes and anesthesia was induced with Fentanyl 3 mcg/kg IV and Propofol 4mg/kg IV, after which there was loss of all responses. Larynx was sprayed with 10% Xylocaine; she was intubated with no. 7 mm cuffed portex endotracheal tube without use of muscle relaxant and ventilation was continued with 50% N<sub>2</sub>O in O<sub>2</sub>. There was no hemodynamic response to laryngoscopy and intubation conditions were excellent.

Anesthesia was maintained with bolus doses of Fentanyl 200 mcg after intubation and 100 mcg when was required and Propofol infusion at the rate of 6-12 mg/kg/h. Thymectomy was completed uneventfully and the patient was hemodynamically stable. At the completion of surgery (215 minutes duration), N<sub>2</sub>O was switched off; 100 % oxygenation continued, Propofol infusion was stopped. Neostigmine 1.5 mg, and Atropine 0.5mg, were administered. Patient regained consciousness and adequate muscle power and was extubated after 13 minutes of satisfying all clinical criteria, of recovery. She was then transferred to the intensive care unit (ICU), for better post operative monitoring. Post operatively she continued her routine treatment and also atropine was added in her therapy. Postoperative analgesia was achieved with Tramadol 100mg in 500 ml of Sol.NaCl 0.9% and Diclofenac 75mg/IV/12h. The patient was comfortable and analgesia was excellent. Her post -operative x-ray chest showed no abnormality. The patient was discharged from the ward after an uneventful 16 days of stay.

### 3. DISCUSSION

Neuromuscular weakness and easy fatigability are the hallmarks of myasthenia gravis which results from autoimmune damage to the post synaptic nicotinic receptors (3). There is considerable evidence that thymectomy improves survival, rate of remission and accelerates symptomatic improvement in patients with myasthenia gravis (4). So we utilized Propofol with Fentanyl for rapid induction, better relaxation of jaw muscles and for providing adequate depth of anaesthesia. However, we have modified our technique which we present

in this report to be non-muscle relaxant without thoracic epidural analgesia. Our current anesthetic technique includes non-muscle relaxant approach, tracheal intubation with endotracheal tube, and continuous infusion of Propofol with bolus doses of Fentanyl on demand.

### 4. CONCLUSION

In conclusion, anesthesia for thymectomy in myasthenia gravis is challenging. Use of modified non-muscle relaxant technique for thymectomy provided excellent intubation, intraoperative and postopera-

tive conditions. With this technique muscle relaxants can be avoided, which facilitates early extubation and avoids postoperative mechanical ventilation.

### REFERENCES

1. Abe S, Takeuchi C, Kaneko T. et al. Propofol anesthesia combined with thoracic epidural anesthesia for thymectomy in myasthenia gravis - a report of 11 cases. *Masui*. 2001; 50: 1217-20.
2. Baraka A. Anaesthesia and myasthenia gravis. *Can J Anaesth*. 1992; 39(5): 476-86.
3. Baraka A. Anaesthesia and myasthenia gravis. *Can J Anaesth*. 1992; 39: 476-86.
4. Gracey DG et al. Postoperative respiratory care after trans-sternal thymectomy in myasthenia gravis. *Chest*. 1984; 86: 67-71.

## NEWS

### On the Occasion of the 50th Anniversary of the Academy of Medical Sciences of Croatia

In Zagreb on 15th June 2011 was celebrated 50th Anniversary of Croatian Academy of Medical Sciences (AMSC). The ceremony took place in the Narodni dom, the famous architectural structure from the 18th century, which the Count Draskovic richly endowed (do not know if he only equip it or made, order it?) to mark important anniversaries and events of historical significance for Croatia and the capital. The ceremony was attended by the most distinguished political and academic representatives of the Republic of Croatia, over two hundred academics, especially from medical science, whose academic reputation and research results contributed significantly to the reputation of the Republic of Croatia in the development of medicine and health. Distinguished guests were addressed by: Mr. Ivo Josipovic, the President of Croatia, Ms. Jadranka Kosor, Croatian Prime Minister, Mr. Luka Bebic, President of the Croatian Parliament, Mr. Darko Milinovic, Croatian Deputy Prime Minister and Minister of Health, Academician Zvonko Kusic, President of the Croatian Academy of Arts and Sciences, and academic Zeljko Reiner, president of the Croatian Academy of Medical Sciences.

After the formal welcome speech, President Mr. Ivo Josipovic awarded the highest state award - the Charter of the Croatian Republic "for outstanding contribution to the Croatian Academy of Medical Sciences during the 50 years of its existence." Mr. Ivo Josipovic, speaking to academics, in his speech said: "The results we've achieved, numerous publications, abroad activities, successes, inventions, patents, new technologies, new medical procedures, are really an important contribution to the quality of our lives." Ms. Kosor point out that Croatia will become the 28th member of the European Union and the Croatian language 24th official EU language, and that Croatia's EU accession brings all the richness of Croatian, including a wealth of work and results achieved by Croatian scientists and experts from all areas including medical and AMSC which has so far published over 100 scientific books by their academics, which is an immeasurable contribution to the development of medical science, not only in Croatia but also in the world.

Otherwise, the main task of the AMSC is to promote biomedical sciences for improving the health of the Croatian population. The Academy has over 300 regular and 50 cooperating members, best sci-

entists in biomedicine chosen by secret ballot. It is the case of experts who stand out within the scientific activity in a specific medical discipline or medical related biomedical sciences and who have contributed significantly to the development medical science in Croatia. AMSC is conducting a series of scientific projects, organized by dozens of scientific researches through annual meetings and the College Board, and a prestigious members for contributions to the development of medicine is awarded respected awards and prizes ("Ante Šerčer" the best scientific work in the past year, "Borislav Nakić" the best scientific work by person younger than 35 years of age and the "Laureate of the Academy," a member of AMSC who with their life work in particular contributed to the development of Croatian medicine and AMSC). AMSC is issuing four indexed journals (*Acta Medica Croatica*, *Croatian Medical Journal*, *Social Psychiatry* and *AMSC Bulletin*) and also new books in the field of medicine, written by its members. AMSC regularly collaborates with others academies of medical science in Europe

and worldwide and is a member of numerous international associations.

It was founded in 1961 as the Commission for scientific and research work of the Main Board of the Croatian Medical Association. In 1971 it was renamed into the Medical Academy Assembly, then in 1983 was separated from the Croatian Medical Association and became an independent organization - Croatian Academy of Medical Sciences. Its presidents, academician Asim Kurjak and academic Zeljko Reiner wholeheartedly helped establishment of the Academy of Medical Sciences of Bosnia and Herzegovina (AMSB&H) in 2008. I had the honor and pleasure as the President of Academy of Medical Sciences of B&H to attend this solemn and important event and have useful discussions on future cooperation between our two academies in all areas of activity and express special gratitude for the previous help of AMSC to the development of AMSB&H.

*Academician Izet Masic, MD, PhD*



Proslava 50. obljetnice AMZ Hrvatske u Zagrebu, 15. juna/lipnja 2011. godine. U prvom redu sjede, s lijeva nadesno: akademik Izet Masic, predsjednik AMNuBiH; akademik Zvonko Kusić, predsjednik HAZU; mr. sci. Darko Milinović, potpredsjednik Vlade RH i ministar zdravstva i socijalne skrbi RH; predsjednik Sabora RH Luka Bebić; predsjednica Vlade RH Jadranka Kosor; prof. dr. Ivo Josipović, predsjednik RH; i akademik Zeljko Reiner, predsjednik AMZH

**FIGURE 1.** From right to left: Z. Reiner, I. Josipovic, J. Kosor, L. Bebic, D. Milinovic, Z. Kusic, I. Masic