

# Endoscopic thymectomy in patients with Myasthenia Gravis using the Da Vinci robot system



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## INTRODUCTION

Thymectomy in myasthenia gravis is considered a universally recommended treatment in order to improve the symptomatologic condition of this pathology. Currently, minimally invasive thymectomy using the Da Vinci robot system is certainly one of the most innovative techniques, performed in Pisa since 2001 and routinely from 2011. This approach provides a valuable alternative to the traditional thymectomy through median sternotomy.

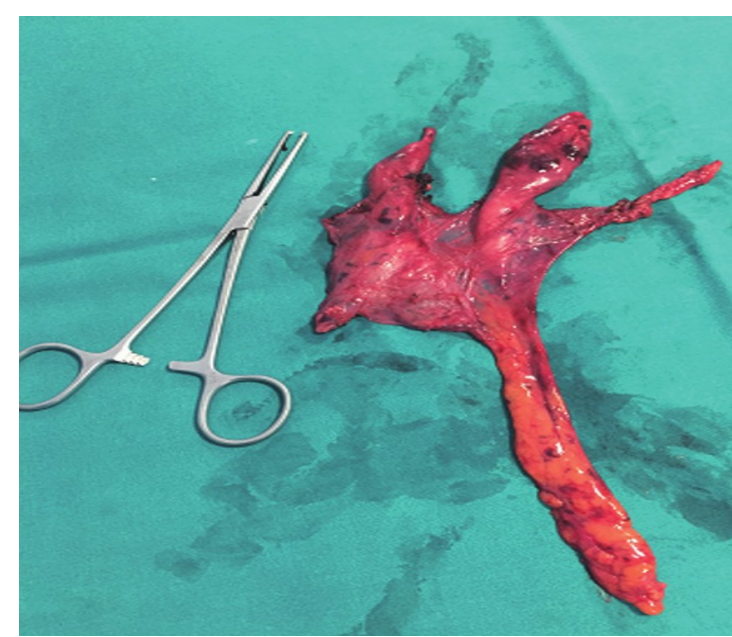


Fig. 1: Thymic hyperplasia excised with robotic technique.

## MATERIALS AND METHODS

We retrospectively studied 48 patients who underwent robotic thymectomy between January 2011 and March 2016 (12 males and 36 females, mean age  $34,9 \pm 14,5$  years).

- Patients were evaluated according to MGFA (MG Foundation of America) classification: five patients were included in class 1, 13 patients in class 2A, 8 patients in class 2B, 4 patients in class 3, 14 patients in class 3B, 3 in class 4B, 1 in class 5.
- All patients were given steroids throughout the entire perioperative period. In all cases, thymus excision was complete with perithymic adipose tissue removal and no major intra- or post-operative complications occurred. The mean operating time was 128 minutes and the mean postoperative hospital stay was three days (range: 2-5 days).
- Histologically, 6 patients were affected by thymoma (3 thymoma B1, 2 thymoma B2, and one patient thymoma B3) while 42 patients were shown to have thymic hyperplasia.

## RESULTS

Complete stable remission was observed in 6 patients (4 with hyperplasia and 2 with thymoma), Eleven patients achieved pharmacologic remission after a mean period of seven months; 5 patients presented significant clinical improvement with minimal signs of the disease; and two patients showed marginal improvement. Three patients, however, did not show any significant clinical changes. None of the patients had worsened symptoms.

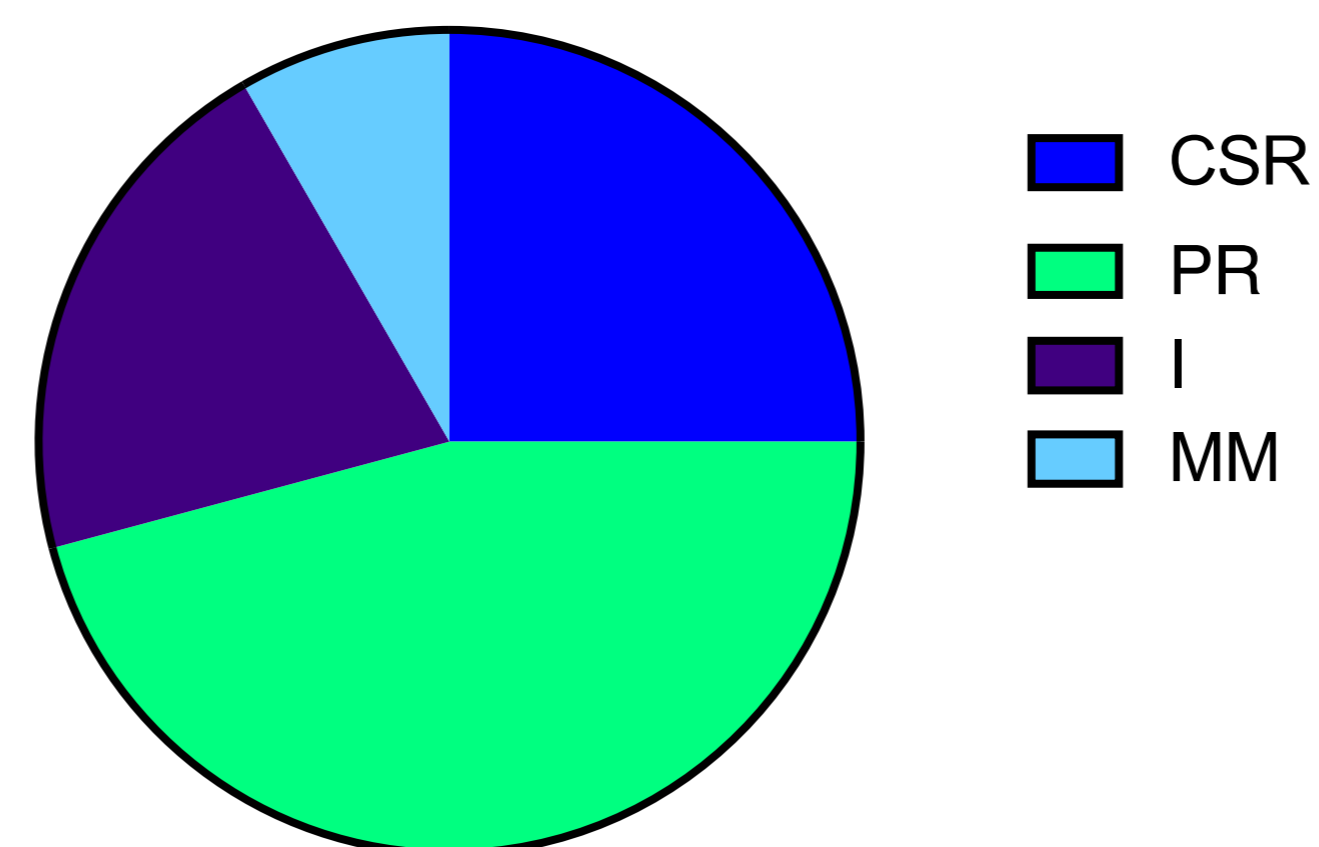


Fig. 2: Results of endoscopic thymectomy. CSR (complete stable remission); PR (pharmacologic remission); I (improvement); MM (minimal manifestation)



Fig. 3: Setting of the operating theatre for robotic surgery in myasthenia gravis patient with the multidisciplinary team in Pisa (from left to right neurologist, anesthetist, thoracic surgeon and collaborators).

## DISCUSSION and CONCLUSION

The endoscopic approach provides a valuable alternative to the traditional thymectomy through median sternotomy, particularly for clinically well-compensated young patients in whom the mini-invasive approach and the rapid postoperative recovery could represent an important additional factor for the achievement of an optimal therapeutic result. The contribution of a neurologist is fundamental for preoperative patient selection and for the peri and post-operative clinical assistance in both approaches. We believe that also in the robotic approach, the multidisciplinary collaboration between the neurologist, thoracic surgeon and anesthetist is important in reducing perioperative complications and ensuring a higher rate of complete remission or stable clinical improvement of Myasthenia Gravis.