



ORIGINAL RESEARCH PAPER

Surgery

THE ROLE OF MODERN MEDICAL TECHNOLOGIES (MINIMALLY INVASIVE SURGERY) TO THE PATIENT BENEFITS

KEY WORDS: Minimally invasive surgery; surgical robotics; outcome

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ABSTRACT	Introduction: The diffusion of minimally invasive surgery has thrived in recent years, providing substantial benefits over traditional techniques for a number of surgical interventions. This rapid growth has been possible due to significant advancements in medical technology, which partly solved some of the technical and clinical challenges associated with minimally invasive techniques.
	Aim: To study the outcome of minimal invasive surgeries to the patients
	Methods: This study is performed on 100 patients ranging in age from 20 yrs to 60 yrs. Laparoscopy method is used in the process of surgeries.
	Results: There are maximum gynecological cases (61%) as compared to urological (27%) and general cases (12%) for MIS. There is a 100% success rate according to analysis which is based on the discharge summary of 100 patients. Also, 100% of the patients were satisfied with their surgery as its procedure. 3% complications were recorded during the analysis.
	Conclusion Minimally invasive surgery has been developing to the scare less surgery. MIS has a learning curve which needs to be followed to accomplish perfection. As in all aspects of medicine, laparoscopic surgery requires experience on the part of the surgeon in order to afford patients the best possible outcome.

INTRODUCTION

Minimally invasive surgery (MIS) has experienced a surge in popularity over the past few decades, thanks to rapid technological advances and growing consensus in the clinical community. According to a report on laparoscopic devices recently released by Global Industry Analysts Inc., 7.5 million laparoscopies were performed worldwide in 2015.[1] For a number of operations – such as appendectomy, tubal ligation, cholecystectomy, gastric bypass, myomectomy, and prostatectomy – more than 90% of interventions are now performed through minimally invasive approaches, with projected growth rates of up to 15% in the next 5 to 10 years.[2] The main reason behind this paradigm shift is the significant reduction of trauma to the patient's body that results from the minimisation or even elimination of surgical incisions. The reduced physical trauma, in turn, leads to a number of additional benefits for the patient: lower incidence of post-surgery complications, reduced pain, quicker recovery, shorter length of hospital stay, minimal cosmetic disfiguration, decreased psychological impact, and overall improved quality of life.[3–8] Choosing to perform MIS over open surgery, however, means also embracing a series of potential disadvantages from the surgeon's perspective. These include limited operating space and field of vision; the lack of haptic feedback; the loss of stereo vision and depth perception; diminished hand-eye coordination; prolonged learning curves and training periods; extended operation times; and increased costs.[9–11] With the recent developments in medical and surgical technology, such complications are gradually being overcome, enabling the adoption of minimally invasive procedures in hospitals and clinics around the world.

AIM

To study the outcome of minimal invasive surgeries to the patients

MATERIALS AND METHODS

This study is performed on 100 patients ranging in age from 20 yrs to 60 yrs. Laparoscopy method is used in the process of surgeries. The study methodology comprised of an audit to keep a record of the patients' complaint while entering the hospital, their hospital records, the method used to do their surgery, the number of days of hospital stay, blood loss, post-operative pain, recovery duration

and number of visits after the discharge from hospital.

RESULTS

In this study 100 patients were included, female (64%) and males (46%) who have undergone MIS. Maximum patients, that is, 85 patients, were below the age of 40 years. Only 15 patients were of above the age of 40 years. There are maximum gynecological cases (61%) as compared to urological (27%) and general cases (12%) for MIS. There is a 100% success rate according to analysis which is based on the discharge summary of 100 patients. Also, 100% of the patients were satisfied with their surgery as its procedure. 3% complications were recorded during the analysis. Only 7 patients were recorded who stayed for 7 or more days after their surgery. More than 50% patients, that is, 54 patients, stayed for period of 1-3 days in hospital after the surgery. And 39 patients were recorded who stayed for 4-6 days in hospital after their surgery.

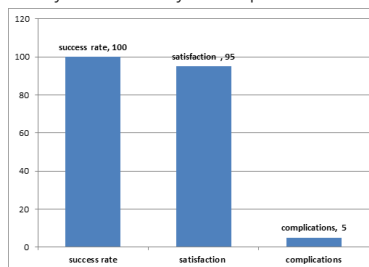


Figure 1 Distribution of Outcome of the study

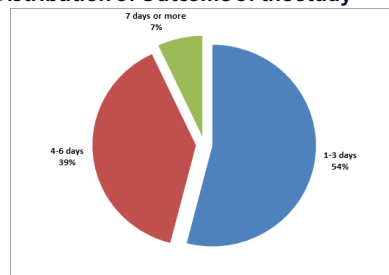


Figure 2 Distribution of Hospital stay

CONCLUSION

Minimally Invasive Surgery is boon to the patients. MIS is a different surgical approach which reduces trauma without compromising the basic steps/ ethics of surgery and quality of surgical procedure. The physiological change in MIS is mostly induced by pneumoperitoneum. MIS is dependent on sophisticated instrument and good surgical team. Trend of the future surgery is move to minimally invasive surgery. Minimally invasive surgery has been developing to the scare less surgery. MIS has a learning curve which needs to be followed to accomplish perfection. As in all aspects of medicine, laparoscopic surgery requires experience on the part of the surgeon in order to afford patients the best possible outcome. The anatomy visible through a laparoscope differs in perspective from that presented in the open case, basic techniques such as suturing have to be relearned, and there is a decrease in tactile sense as an instrument is interposed between fingertip and tissue. Several surgeons have defined a learning curve for laparoscopic procedures after which the rate of complications plateau and most series note a decrease in the time necessary to complete a procedure from the first cases to the last. Adequate instruction and super-vision would seem prudent as a surgeon ascends the learning curve. Ultimately, complications can be minimized but never avoided. Expeditious diagnosis and appropriate management of complications are requisite of all surgeons.

REFERENCES

1. Global Industry Analysts Inc. Laparoscopic Devices - A Global Strategic Business Report. San Jose, California, USA: 2015. http://www.strategyr.com/Laparoscopic_Devices_Market_Report.asp
2. Tsui C, Klein R, Garabrant M. Minimally invasive surgery: National trends in adoption and future directions for hospital strategy. *Surg Endosc Other Interv Tech* 2013;27:2253-7. doi:10.1007/s00464-013-2973-9
3. Ee WWG, Lau WLJ, Yeo W, et al. Does Minimally Invasive Surgery Have a Lower Risk of Surgical Site Infections Compared With Open Spinal Surgery? *Clin. Orthop. Relat. Res.* 2013;472:1718-24. doi:10.1007/s11999-013-3158-5
4. Luketich JD, Pennathur A, Awais O, et al. Outcomes After Minimally Invasive Esophagectomy: Review of Over 1000 Patients. *Ann Surg* 2012;256:95-103. doi:10.1097/SLA.0b013e3182590603.Outcomes
5. Holzhey DM, Seeburger J, Misfeld M, et al. Learning minimally invasive mitral valve surgery: A cumulative sum sequential probability analysis of 3895 operations from a single high-volume center. *Circulation* 2013;128:483-91. doi:10.1161/CIRCULATIONAHA.112.001402
6. Tan H-J, Wolf Jr. JS, Ye Z, et al. Population Level Assessment of Hospital Based Outcomes Following Laparoscopic Versus Open Partial Nephrectomy During the Adoption of Minimally Invasive Surgery. *J Urol* 2014;191:1231-7. doi:10.1016/j.juro.2013.11.002
7. Bostanci K, Ozalper MH, Eldem B, et al. Quality of life of patients who have undergone the minimally invasive repair of pectus carinatum. *Eur J cardio-thoracic Surg* 2012;43:1-5. doi:10.1093/ejcts/ezs146
8. Kabbaj R, Burnier M, Kohler R, et al. Minimally invasive repair of pectus excavatum using the Nuss technique in children and adolescents: Indications, outcomes, and limitations. *Orthop Traumatol Surg Res* 2014;100:625-30. doi:10.1016/j.otsr.2014.05.019
9. Fuchs KH. Minimally invasive surgery. *Endoscopy* 2002;34:154-9. doi:10.1055/s-2002-19857
10. Smith R, Day A, Rockall T, et al. Advanced stereoscopic projection technology significantly improves novice performance of minimally invasive surgical skills. *Surg Endosc Other Interv Tech* 2012;26:1522-7. doi:10.1007/s00464-011-2080-8
11. Cuevas A, Lorias D, Minor A, et al. Minimally invasive surgical skills evaluation in the field of otolaryngology. *Proc 26th IEEE Int Symp Comput Med Syst* 2013;:83-8. doi:10.1109/CBMS.2013.6627769