Perspective

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Thyroid Surgery by Robotics

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Introduction

In Western practice, robotic transaxillary thyroidectomy is still a contentious procedure, despite being well-established in the Far East. Adoption has been negatively impacted by the larger body habits of Western patients, which compound the technical difficulties of the process and raise issues of cost, training, and ethics. Currently, the procedure is limited to use in individuals who have a history of hypertrophic and keloid scarring together with appropriate pathology, or in health care systems where personalized treatment is utilized. Following an early surge in interest, the number of robotic treatments in the Western World has now plateaued and decreased. Remarkably, the biggest numbers are carried out in low-volume hospitals, supporting personalized treatment as the main force behind this.

Description

Young women are most likely to develop thyroid nodules, including low-risk papillary thyroid carcinoma. This particular patient group is, understandably, the one that is most concerned about cosmesis. This is especially true in the Far East, where it is thought that a horizontal scar on the neck signifies death.

The development of "scarless" endoscopic thyroidectomies (in the neck) was prompted by the aforementioned issues. Over the years, numerous approaches have been reported, such as postauricular and axillary endoscopic approaches, bilateral axilla-breast endoscopic approaches, axilla-bilateral-breast, infraclavicular, breast, and axillary endoscopic approaches. But out of all the endoscopic techniques tested, none turned out to be better than the others. They were all characterized by the same limitations of endoscopic surgery, which include the need for insufflation, fulcrum effect, limitations in instrument movement, and dependence on multiple assistants.

Robotic technology was developed to overcome the limitations associated with endoscopic surgery. Its unique features, such as a dual-channel stereoscopic endoscope that offers simultaneous image magnification and depth perception through 3-dimensional visualisation, along with its wristed robotic instruments with seven degrees of freedom, significantly improve surgical dexterity.

South Korea reported the first major series (n=100) of transaxillary gasless robotic thyroidectomy in 2009. Thousands of instances were carried out in the Far East during the ensuing years, as the treatment quickly gained popularity among the local populace. In contrast, the Western World has seen a far smaller uptake. There have been several causes linked to this, such as cultural differences, anthropometric inequalities, compensation concerns, and the existence.

A nationwide thyroid cancer screening program in South Korea that has made thyroid nodules easier to remove by detecting them early, frequently when they are less than 1 centimeter in diameter Level 2a evidence supports robotic thyroidectomy as a safe, viable procedure that is better cosmetically than open surgery in terms of cosmesis and feasibility. The majority of studies on the viability and safety of robotic thyroidectomy come from the Far East, although there are also studies from high-volume centers in the UK, Europe, and North America.

Operation is better than traditional open surgery (level 2b) Recurrent laryngeal nerve damage, hypoparathyroidism, and hemorrhage have been found to be the most prevalent problems following thyroid surgery, according to five meta-analyses of cohort studies that combined pooled data from several thousand patients. There were no discernible differences (level 2a) between robotic and open thyroidectomy with regard to hemorrhage, permanent hypoparathyroidism, or temporary and permanent recurrent laryngeal nerve injury. Patients undergoing robotic thyroidectomy (level 2a) had a greater inci dence of transitory hypoparathyroidism.

Reviews from 2016 expanded this analysis to include data from more than 15 studies, supporting the finding that there was no difference in length of hospital stay, quality of life, wound infection, seroma, chyle leak, and tracheal damage between robotic and traditional thyroidectomy.

However, early swallowing and scar satisfaction consistently demonstrated a significant improvement in favor of the robotic technique (level 2a). Not every patient, surgeon, or facility is a good fit for robotic thyroidectomy at this time. Selecting patients with care and moderation is crucial. In addition to taking ethics into account, scientific research and methodical, thorough review should always be used when implementing any new surgical technology. Innovation adoption should be guided by evidence, and commercial enterprises should financially support future ethically authorized research.

These kinds of studies will offer the kind of governance and direction needed for the safe and efficient implementation of novel surgical technologies.

Conclusion

When patients are carefully chosen, there is evidence to support robotic transaxillary thyroidectomy for the treatment of both benign and malignant illness. High-volume surgeons working in specialized centers as a multidisciplinary robotic team should do this treatment. Centralization will support and encourage additional research, offer a platform for instruction and teaching, and provide the framework for ensuring patient safety through audit and governance. Although new robotic techniques for thyroidectomy that use the retroauricular and transoral routes have been reported, more research is needed to determine each technique's place in contemporary thyroid surgery.