



Robot-Assisted Submandibular Gland Excision Via Retroauricular Approach in a Patient with Known Keloid Formation Tendency – A Case Report

Kalpana Nagpal^{1*}, Suresh Singh Naruka¹, Nishant Rana¹ and Raman Raina²

¹Department of ENT and Head and Neck surgery, Indraprastha Apollo Hospitals, India

²Department of Anesthesiology, Indraprastha Apollo Hospitals, India

*Corresponding Author: Kalpana Nagpal, Department of ENT and Head and Neck surgery, Indraprastha Apollo Hospitals, India

Received: February 24, 2020

Published: March 11, 2020

© All rights are reserved by Kalpana Nagpal, et al.

Abstract

Background: Surgical excision of the submandibular gland is the definite treatment of various pathologies of submandibular gland. The surgical excision is usually performed via lateral transcervical approach which is the standard approach, which may result in hypertrophic scar or keloid formation in a patient with known history.

Case Presentation: A 26 years old female patient presented with complaint of swelling at right submandibular region, associated with colicky pain. After required examination and investigations a final diagnosis of submandibular gland sialadenitis was made. An interesting thing to note was that the patient had known tendency of keloid formation and the option of remote access robotic surgery for submandibular gland excision was suggested.

Conclusion: Submental and submandibular region is the most common site for keloid development in neck region. Robotic assisted submandibular gland excision has been successfully performed and has definite advantage in terms of cosmesis.

Keywords: Submandibular Gland; Sialadenitis; Robot-Assisted Surgery; da Vinci Si; Retroauricular Approach

Background

Surgical excision of the submandibular gland is the definite treatment of various pathologies of submandibular gland like chronic sialadenitis, sialolithiasis, benign and malignant tumors [1,2]. The surgical excision is usually performed via lateral transcervical approach which is the standard approach of surgical access to submandibular gland. This approach may result in a visible scar, pigmentation and even hypertrophic scar or keloid formation in a particular group of population who have some genetic risk factors that increase dermal inflammation and keloid formation [3,4].

In the present report, we are discussing a case of submandibular sialadenitis in a patient having known keloid formation tendency, in which the submandibular gland is excised completely with the assistance of robot via retroauricular approach.

Case Presentation

A 26 years old female patient presented to us with complaint of swelling at right submandibular region for last 6 months, which was progressively increasing in size. The swelling was also associated with colicky pain. The swelling worsened with eating every time. She received multiple courses of antibiotic but the pain and swelling persisted.

On examination, right submandibular gland was palpable. It was firm, tender and bimanually palpable. Ultrasonography was

performed, which was suggestive of bulky gland. Then ultrasound guided FNAC (fine needle aspiration cytology) was performed and a final diagnosis of submandibular gland sialadenitis was made.

An interesting thing to note was that the patient had known tendency of keloid formation. She had a keloid on the left ear. Patient did not want to have a bad scar, so the option of remote access robotic surgery for submandibular gland excision was suggested to her. Patient was motivated for the robotic surgery. There was no contraindications for robotic surgery in preoperative evaluation and patient taken up for submandibular excision with robotic assistance.

Surgical technique

The surgical technique was explained to the patient and an informed consent for the surgery under general anesthesia was taken. The patient was placed in supine position, neck was extended and head turned to left side, as the lesion was present on right side. The incision was made in the lower part of postauricular sulcus, curving across and downward into the hairline as shown in figure 1. The dissection was performed through subplatysmal plane toward submandibular gland. The great auricular nerve was identified and preserved. Sternocleidomastoid muscle retracted and gland identified. The skin flap was elevated anterior to submandibular gland using a self-retaining retractor and surgical field created.



Figure 1: Retroauricular incision curving across hairline.

We used da Vinci Si system (Intuitive Surgical, Sunnyvale, CA) with 12 mm, 0-degree endoscope with harmonic curved shear (5 mm) and Maryland dissector (5 mm).

The robot was docked and instrument arms were introduced in the surgical tunnel. Dissection started around capsule of submandibular gland; adjacent neurovascular structures were identified. Marginal mandibular nerve was saved, as the working space was made between the superficial layer of deep cervical fascia and capsule of gland [5]. Facial artery and vein identified by the high definition camera of the robotic system and clipped meticulously, which permitted complete liberation of gland and augmented excellent surgical exposure (Figure 2). Minor bleeding was controlled with harmonic scalpel instrument arm of the robot. Gland was then finally retrieved through the tunnel after releasing it from the digastric and mylohyoid muscle. The lingual and hypoglossal nerves were successfully preserved. A corrugated drain was placed and incision closed in layers.



Figure 2: View showing clipped facial artery.

No intraoperative complication or difficulty occurred. Intraoperative blood loss was minimal. Postoperatively, no complication like hematoma, seroma, wound infection, fistula formation, marginal mandibular and hypoglossal nerve dysfunction was noted. Drain was removed after 48 hours and patient discharged in stable condition.

Discussion and Conclusion

Since the past few years, as technology is advancing, head and neck surgery is making a shift from conventional open transcervical approach to remote access approach which is more cosmetically appealing. Such remote access approach becomes an impor-

tant consideration in young or middle aged women, having known keloid formation tendency. Keloids have more tendency for their formation at locations that are constantly or frequently subjected to tension [4]. The skin of the neck is an uncommon site for keloid formation. Though, submental and submandibular region is the most common site for keloid development [6]. Many surgeons have developed endoscopic surgical techniques to meet the expectations of the patients concerning visible bad scar and surgical related morbidity. But due to some drawbacks of endoscopic technique like difficult manipulation of the instruments, non-articulated instruments, long surgery time and insufflation complications, it did not gain popularity among surgeons [7].

Now in the era of robotic technology, robot has entered in the field of head and neck, providing excellent outcomes with numerous additional benefits as compared to endoscopic and open transcervical approaches [8]. Robotic surgery for approaching submandibular gland has overcome many drawbacks of endoscopic approach. Robotic surgery allows the surgeon to attain and maintain an excellent surgical workspace, good visualization and magnification. Lower surgical related morbidity, uneventful post-operative period, less pain and excellent cosmetic outcomes are few straightforward advantages of robotic technology. Different types of methods have been used for approaching submandibular gland with the assistance of robot. The da Vinci robot gives splendid 3-dimensional view of the borders of glandular tissue and Endowrist articulated instruments provides meticulous dissection with high precision [9].

One concern which comes with robotic surgery is that, a slightly larger incision is required as compared to conventional open surgery, but the advantage is that the scar is hidden and the risk of keloid formation in patients with known history is decreased [10].

The feasibility, safety and aesthetic advantage of robotic surgery for submandibular gland resection by retroauricular approach has been demonstrated by several studies and case series [9,11,12]. Robotic assisted submandibular gland excision has been successfully performed and has definite advantage in terms of cosmesis.

With this case report, we are trying to demonstrate that retroauricular robotic surgery for submandibular gland resection is feasible and a safe alternative, especially in patient with known keloid formation tendency.

Financial Support

Nil.

Acknowledgements

We would like to thank department of ENT and Head and Neck surgery and department of Anesthesiology, Indraprastha Apollo Hospitals, New Delhi India.

Conflicts of Interest

None.

Bibliography

1. Munir N and Bradley PJ. "Diagnosis and management of neoplastic lesions of the submandibular triangle". *Oral Oncology* 44.3 (2008): 251-260.
2. Beahm DD, et al. "Surgical approaches to the submandibular gland: a review of literature". *International Journal of Surgery* 7.6 (2001): 503-509.
3. Yang TL. "Robotic surgery for submandibular gland resection through a trans-hairline approach: The first human series and comparison with applicable approaches". *Head and Neck* 40.4 (2018): 793-800.
4. Ogawa R. "Keloid and hypertrophic scars are the result of chronic inflammation in the reticular dermis". *International Journal of Molecular Sciences* 18.3 (2017): 606.
5. Kim CH, et al. "Robotic-assisted neck dissection in submandibular gland cancer: preliminary report". *Journal of Oral and Maxillofacial Surgery* 71.8 (2013): 1450-1457.
6. Tirgan MH. "Neck keloids: evaluation of risk factors and recommendation for keloid staging system". *F1000Research* (2016).
7. Muenscher A, et al. "The endoscopic approach to the neck: a review of the literature, and overview of the various techniques". *Surgical Endoscopy* 25.5 (2011): 1358-1363.
8. Byeon HK and Koh YW. "The new era of robotic neck surgery: The universal application of the retroauricular approach". *Journal of Surgical Oncology* 112.7 (2015): 707-716.
9. Yang TL, et al. "Gland-preserving robotic surgery for benign submandibular gland tumours: a comparison between robotic and open techniques". *British Journal of Oral and Maxillofacial Surgery* 52.5 (2014): 420-424.
10. Lee HS, et al. "Robot-assisted versus endoscopic submandibular gland resection via retroauricular approach: a prospective nonrandomized study". *British Journal of Oral and Maxillofacial Surgery* 52.2 (2014): 179-184.
11. De Virgilio A, et al. "Robotic sialoadenectomy of the submandibular gland via a modified face-lift approach". *International Journal of Oral and Maxillofacial Surgery* 41.11 (2012): 1325-1329.
12. Lee HS, et al. "Feasibility of robot-assisted submandibular gland resection via retroauricular approach: preliminary results". *The Laryngoscope* 123.2 (2013): 369-373.

Assets from publication with us

- Prompt Acknowledgement after receiving the article
- Thorough Double blinded peer review
- Rapid Publication
- Issue of Publication Certificate
- High visibility of your Published work

Website: <https://www.actascientific.com/>

Submit Article: <https://www.actascientific.com/submission.php>

Email us: editor@actascientific.com

Contact us: +91 9182824667