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Long-term Efficacy and Patient Satisfaction with Endoscopic Dacryocystorhinostomy: A Prospective Cohort Study.

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ABSTRACT

To evaluate the long-term efficacy and patient satisfaction of endoscopic dacryocystorhinostomy (DCR) in treating nasolacrimal duct obstruction (NLDO). This prospective cohort study included 40 patients with NLDO who underwent endoscopic DCR at our Department. Preoperative assessments involved clinical examinations and imaging studies. Surgeries were performed using a standardized endoscopic technique, and patients were followed up at 1 week, 1 month, 6 months, and 1 year postoperatively. Data on surgical success, complications, and patient satisfaction were collected and analyzed. The success rates were 97.5% at 1 week, 95% at 1 month, 92.1% at 6 months, and 90% at 1 year. Complications included intraoperative bleeding (5%), postoperative infection (2.5%), granulation tissue formation (7.5%), nasal adhesions (2.5%), and the need for revision surgery (5%). Patient satisfaction scores remained high, with mean scores of 8.5 at 1 week and 7.8 at 1 year. There was a strong positive correlation between surgical success and patient satisfaction ($r=0.75$ to 0.85, $p<0.001$). Endoscopic DCR is a highly effective and satisfactory treatment for NLDO, with high success rates and manageable complications over a two-year follow-up period. These findings support its use as a preferred method for NLDO management.

Keywords: Endoscopic dacryocystorhinostomy, nasolacrimal duct obstruction, patient satisfaction

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INTRODUCTION

Endoscopic dacryocystorhinostomy (DCR) is a minimally invasive surgical technique primarily used to treat nasolacrimal duct obstruction (NLDO), a condition characterized by the blockage of the tear drainage system, which can lead to chronic tearing, recurrent eye infections, and significant discomfort [1]. Traditional external DCR, while effective, often involves a more invasive approach with potential for visible scarring and longer recovery periods [2-4]. In contrast, endoscopic DCR offers a less invasive alternative that utilizes nasal endoscopy to create a new tear drainage pathway, reducing the risk of external scarring and potentially offering a quicker recovery. Despite the growing adoption of endoscopic DCR, there remains a need for comprehensive, long-term data to assess its efficacy and patient satisfaction compared to traditional methods [5].

Our prospective cohort study aims to evaluate the long-term outcomes and patient satisfaction of individuals undergoing endoscopic DCR. By following patients over an extended period, we seek to provide robust data on the success rates, recurrence of symptoms, and overall patient experiences associated with this procedure [6]. Our findings will contribute to the existing body of literature and provide valuable insights for ophthalmologists and otolaryngologists in optimizing treatment strategies for NLDO, ultimately enhancing patient care and outcomes.

METHODOLOGY

Our prospective cohort study was conducted over a period of two years. The sample consisted of 40 patients diagnosed with nasolacrimal duct obstruction (NLDO) who underwent endoscopic dacryocystorhinostomy (DCR) at our institution. Patients were selected based on specific inclusion criteria: age 18 years or older, confirmed diagnosis of NLDO, and no prior history of DCR. Exclusion criteria included patients with secondary causes of NLDO, such as trauma or malignancy, and those with systemic conditions affecting nasal anatomy or function.

Preoperative assessment included detailed history taking, clinical examination, and imaging studies such as dacryocystography and nasal endoscopy to confirm NLDO. All surgeries were performed by experienced surgeons using a standardized endoscopic technique. The procedure involved the creation of an osteotomy in the lateral nasal wall to establish a new tear drainage pathway, utilizing endoscopic guidance to ensure precision. Postoperative care included routine follow-ups at 1 week, 1 month, 6 months, and 1 year, during which patients were evaluated for symptom resolution, patency of the tear drainage system, and any complications.

Data on surgical success, defined as the resolution of epiphora and patency of the new drainage pathway, were collected and analyzed. Patient satisfaction was assessed using a standardized questionnaire administered at each follow-up visit. Additional parameters, such as intraoperative and postoperative complications, were recorded. The study's primary outcomes were the long-term efficacy of the endoscopic DCR procedure and patient satisfaction. Statistical analysis was performed to evaluate the correlation between surgical outcomes and patient-reported satisfaction, providing a comprehensive understanding of the procedure's effectiveness follow-up period.

RESULTS

Table 1: Demographic and Baseline Characteristics of Patients

Characteristic	Value
Total Patients	40
Age (mean ± SD)	45.3 ± 12.7 years
Gender (Male: Female)	18:22
Duration of Symptoms (mean)	12.5 months
Unilateral: Bilateral NLDO	32:8
Previous NLDO Treatment (%)	25%

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Table 2: Surgical Success Rates

Follow-Up Interval	Patients Evaluated	Success Rate (%)
1 Week	40	97.5
1 Month	40	95
6 Months	38	92.1
1 Year	36	90

Table 3: Complications Observed

Type of Complication	Incidence (n)	Percentage (%)
Intraoperative Bleeding	2	5
Postoperative Infection	1	2.5
Granulation Tissue Formation	3	7.5
Nasal Adhesions	1	2.5
Revision Surgery Required	2	5

Table 4: Patient Satisfaction Scores

Follow-Up Interval	Mean Satisfaction Score (out of 10)	Standard Deviation
1 Week	8.5	1.2
1 Month	8.3	1.3
6 Months	8.0	1.5
1 Year	7.8	1.7

Table 5: Correlation between Surgical Success and Patient Satisfaction

Follow-Up Interval	Correlation Coefficient (r)	p-Value
1 Week	0.85	<0.001
1 Month	0.82	<0.001
6 Months	0.78	<0.001
1 Year	0.75	<0.001

DISCUSSION

The results of this prospective cohort study demonstrate that endoscopic dacryocystorhinostomy (DCR) is an effective and satisfactory surgical intervention for patients suffering from nasolacrimal duct obstruction (NLDO). With a sample size of 40 patients observed over a two-year period, we found that the procedure yields high success rates, maintains patient satisfaction, and presents a manageable complication profile. These findings provide valuable insights into the long-term efficacy and patient satisfaction associated with endoscopic DCR, contributing to the existing body of literature and offering guidance for clinical practice [7].

Surgical Success Rates

The surgical success rates observed in our study are notably high, with a 97.5% success rate at the one-week follow-up, which slightly decreased to 90% at the one-year mark. This gradual decline in success rate over time is consistent with previous studies, suggesting that while endoscopic DCR is highly effective in the short term, some patients may experience recurrence of symptoms or complications that impact the long-term patency of the tear drainage system. The high initial success rate can be attributed to the precision of the endoscopic technique, which allows for accurate creation of the osteotomy and minimizes trauma to surrounding tissues [8].

Complications

The complication rates observed in this study are relatively low, with intraoperative bleeding and granulation tissue formation being the most common issues. Only 5% of patients required revision surgery, indicating that most complications were manageable and did not significantly impact the overall

success of the procedure. Intraoperative bleeding occurred in 5% of cases, which aligns with the incidence reported in other studies. This complication was effectively controlled intraoperatively and did not lead to any long-term adverse effects. Granulation tissue formation, observed in 7.5% of patients, was managed with topical treatments and did not necessitate additional surgical intervention in most cases. These findings underscore the importance of careful surgical technique and postoperative care in minimizing complications [9-11].

Patient Satisfaction

Patient satisfaction scores were consistently high across all follow-up intervals, with a mean score of 8.5 at one week and 7.8 at one year. This indicates that patients generally experienced significant relief from symptoms and were pleased with the outcomes of the surgery. The slight decline in satisfaction scores over time may reflect the minor recurrence of symptoms or the development of complications in some patients. However, the correlation between surgical success and patient satisfaction remained strong ($r=0.75$ to 0.85), emphasizing that successful restoration of tear drainage is closely linked to patient-reported outcomes. These satisfaction scores highlight the importance of setting realistic expectations and providing thorough preoperative counseling to ensure patients are well-informed about the potential outcomes and risks associated with the procedure.

Long-Term Efficacy

The long-term efficacy of endoscopic DCR, as demonstrated by the sustained success rates and high patient satisfaction, supports its use as a preferred method for treating NLDO. The minimally invasive nature of the procedure, coupled with its effectiveness, makes it an attractive option compared to traditional external DCR, which is associated with more significant morbidity and longer recovery times. The endoscopic approach avoids external incisions, thereby eliminating the risk of visible scarring and reducing the overall impact on the patient's appearance and daily activities.

Comparison with Other Studies

Our findings are consistent with other studies that have reported high success rates and patient satisfaction with endoscopic DCR. For instance, a study by Leong et al. (2010) reported a success rate of 89% at one year, which is comparable to our 90% success rate. Similarly, patient satisfaction in their cohort remained high, reinforcing the reliability and reproducibility of the endoscopic technique. However, it is important to note that the success rates can vary depending on factors such as surgeon experience, patient selection, and adherence to postoperative care protocols.

Clinical Implications

The results of this study have several important clinical implications. Firstly, they affirm that endoscopic DCR is a highly effective treatment for NLDO, providing durable relief from symptoms and high levels of patient satisfaction. This supports the continued use and potentially broader adoption of endoscopic techniques in the management of NLDO. Secondly, the low complication rates highlight the safety of the procedure, although it is crucial for surgeons to be aware of potential risks and to manage them proactively. Lastly, the strong correlation between surgical success and patient satisfaction underscores the need for meticulous surgical technique and comprehensive postoperative care to achieve optimal outcomes.

Limitations

While our study provides valuable insights, it is not without limitations. The sample size of 40 patients, while adequate for a prospective cohort study, may limit the generalizability of the findings.

CONCLUSION

In conclusion, endoscopic DCR is a highly effective and satisfactory surgical option for patients with NLDO, offering high success rates and manageable complication rates over a two-year follow-up period. The strong correlation between surgical success and patient satisfaction underscores the importance of precise surgical technique and thorough postoperative care. These findings contribute to

the growing body of evidence supporting the use of endoscopic approaches in the management of NLDO and provide a foundation for further research to optimize patient outcomes and surgical practices.

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