Demographic Analysis Of Palatal Fistula In A Tertiary Care Centre: A Retrospective Study

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ABSTRACT:
Aim: Purpose of our research was to conduct a demographic analysis of palatal fistula in patients arriving in a tertiary care centre.
Methodology: Retrospectively all the data was taken before repair of palatal fistula from the year January 2000 to June 2020 in JMMCH & RI, Thrissur were enrolled in the study. Subsequent variables: sex, cleft side, presence of Simonart's band, initial cleft width, intraoperative problems, and postoperative problems were measured. A chi-square test was used as statistical measure to analyse the variables.
Results: In age group 0-6 months; the fistula was mostly present in anterior region of hard palatal region (54%), whereas size of the fistula was mostly <0.4mm in 63% cases which was statistically significant (p=0.04). The results were statistically significant in case of patients belonging to 13-24 months (p=0.012) as well as in case of >24 months of age (p=0.045).
Conclusion: We recommend a future prospective controlled study to study the factors that lower the incidence of fistula in bigger sample size population.

Keywords Palatal fistula, Palatoplasty, Cleft Palate

1. INTRODUCTION

Smith et al. define palatal fistula as a patency between the oral and nasal cavities.[1] it's a known complication of birth defect repair. Its incidence ranges between 12 and 45 considered reported by Schultz.[2] Fistula is also present anywhere along the first or secondary palate. they're a result of inadequate dissection of the flaps, closure under tension, post-operative bleeding, hematoma formation between the oral and nasal layers, and infection. Palatal fistulae represent failures of surgical technique.[3] Repair of such fistulae is tricky, even within the better of hands Wilhelmi et al.[4] The fistula recurrence rate ranges from 37 to 50 %. The literature describes numerous techniques to manage palatal fistulae. But a transparent indication of a selected technique to repair a selected fistula is unavailable thanks to the

unavailability of a customary organisation that may indicate the complexity of the fistula. The systems that classify fistulae supported their site help in easy recording and understanding the situation but fail to handle the issue in their management. Treatment of a linear fistula within the anterior palate is less complicated than managing a transverse fistula within the same region. Ease of fistula repair also depends on the proximity of the fistula to the vascular pedicle, because the oral layer closure depends on the available rotation of the flaps. the problem also depends on the initial classification of the congenital anomaly i.e. difficulty is more in bilateral cleft patients than unilateral clefts. So also, fistulae in patients with partial clefts of palate are easier to shut than complete clefts. Another important factor involved within the prognosis is that the degree of scarring within the palatal tissues which increases with the amount of times the palatal flaps are raised for repair. Numerous classification systems are put forth over a few years. Cohen et al. classified them per their site as pre-alveolar, alveolar, post-alveolar, surface, hard-soft palate junction, lip and uvula.[5] The Pittsburg fistula system has attempted to systematically classify the palatal fistulae for simple recording and understanding the placement of the fistula. It classifies fistulae as Class I to VII from Uvula to labial-alveolar.[1] These classifications don't address the issue of the repair. Fistulae classified per the proposed classification provides a comprehensive idea of the problem that may be encountered during closure. Several factors may influence the occurrence of fistulas, including the kind of surgical technique employed for palate closure [6-9], initial cleft width [10], early or advanced age at surgery[11,12], and plastic surgeon's experience.[13] Fistulas may occur anywhere along the palate and are more frequent within the surface and also the transition between hard and palate.[14] The prevalence of fistula after primary palatoplasty reported within the literature ranges from 2% to 45%.[15] Some researchers consider the palatal fistula only it's located within the secondary palate,[16] called true fistulas, including fistulas of the anterior palate, surface, transition between hard and mouth, and lip. However, others also include fistulas within the primary palate, classified as pre-alveolar, post-alveolar, or anterior fistula.[17] The development of a fistula is one in every of the well-known complications which may develop after a surgical repair.[18] Lack of consensus in reporting practices and follow-up time for postoperative fistulae contributes to an under reporting of true incidence and limits the validity of the present literature.[19]

2. AIM OF THE STUDY

Our study aimed to determine the occurrence of palatal fistula, its size variations, timing of repair, technique of repair and incidence to standardize the literature and clarify future studies supported demographic data obtained from 20-year record from our institution.

3. METHODOLOGY

Retrospectively all the info was taken before repair of palatal fistula of 100 patients, from the year January 2000 to June 2020 in JMMCH & RI, Thrissur were enrolled within the study. Data old, sex and size was tabulated and statistical analysis was done. An consent (in English and native language) was obtained from the oldsters after explaining the procedure to them. Inclusion criteria included Patients coming for repair of palatal fistula in JMMCH & RI Thrissur from 2000 to 2020, were enrolled within the study. The chi-square test was applied to investigate the association between presence of fistulas and therefore the subsequent variables: gender, cleft side, presence of Simonart's band, initial cleft width, intraoperative problems, and postoperative problems.

4. RESULTS

We observed in our study, that in age bracket 0-6 months; the fistula was mostly present in anterior region of hard palatal region (54%), whereas size of the fistula was mostly <0.4mm

in 63% cases which was statistically significant (p=0.04). just in case of patients of 7-12 months, maximum number of fistula's were present again within the anterior region of palate (66%) and predominantly size was <0.4 mm in 51 complaints. The results were statistically significant just in case of patients belonging to 13-24 months (p=0.012) yet as just in case of >24 months old (p=0.045). (Table 1) It was observed that in 0-6 months cohort, cleft was mostly present on right side of the midline in almost 50% followed by midline cleft in 32% cases, whereas incidence of midline cleft increased to almost 52% in patients belonging to 7-12 months cohort. just in case of patients belonging to 13-24 months age bracket, cleft was predominantly present at right side of midline in contrast to the presence of cleft mostly in midline region just in case of patients belonging to >24 months. Simonart's band was present in 12 you look after cases in 13-24 months cohort patients, which also was proven by absence of maxillary lateral incisors in those particular patients. Intra-operative problems during palatoplasty procedure like excessive bleeding etc. were present in patients belonging to age bracket of >24 months. Post-operative infections were also more prominent because the age advanced and was evident just in case of patients belonging to >24 months (81%). (Table 2)

TABLE 1: Demographic Data of Palatal Fistula

S.NO.	GENDER	AGE GROUP	SITE OF PALATAL FISTULA	SIZE	$\chi 2$ p-value
	Male (53%), Female (47%)	0-6 months	Anterior region-54% Midline region- 33% Between junction of hard and soft palate-11% In soft palate region-2%	< 0.4 mm-63% ≥ 0.4 mm-37%	0.04
	Male (34%), Female (66%)	7-12 months	Anterior region- 66% Midline region-27% Between junction of hard and soft palate-6% In soft palate region-1%	< 0.4 mm-51% ≥ 0.4 mm-49%	0.267
	Male (18%), Female (82%)	13-24 months	Anterior region-59% Midline region-36% Between junction of hard and soft palate- 3% In soft palate region-2%	< 0.4 mm-79% ≥ 0.4 mm-21%	0.012
	Male (63%), Female (37%)	>24 months	Anterior region-70% Midline region- 25% Between junction of hard and soft palate-2% In soft palate region-3%	< 0.4 mm-65% ≥ 0.4 mm-35%	0.045

**p<0.05 =Significant*

Table 2- Variant factors in demographic analysis of palatal fistula

S. No.	Age Group	Presence of Simonart's band	Side of the cleft	Intraoperative problems	Postoperative problems	$\chi 2$ p-value
1	0-6 months	9%	Right (50%), Left (18%),	Present (33%), Absent (67%)	Present (12%), Absent	0.69

			Midline (32%)		(88%)	
2	7-12 months	6%	Right (37%), Left (11%), Midline (52%)	Present (21%), Absent (79%)	Present (9%), Absent (81%)	0.038
3	13-24 months	12%	Right (61%), Left (3%), Midline (36%)	Present (32%), Absent (68%)	Present (7%), Absent (93%)	0.02
4	>24 months	4%	Right (31%), Left (21%), Midline (48%)	Present (45%), Absent (55%)	Present (19%), Absent (81%)	0.41

**p<0.05 =Significant*

5. DISCUSSION

No positive association was also observed in respect to sex, just like the reports of Muzaffar et al.[20] However, they ail the findings of Amaratunga et al,[6] who observed greater occurrence of fistula in males because of unknown reasons. The presence of Simonart's band in 22% of the sample was almost like data within the literature [21, 22], yet its presence wasn't related to the prevalence of fistula. The presence of this structure could also be associated to the cleft width, making it narrower, possibly interfering with the ultimate outcomes of surgery. For this reason, some researchers suggest exclusion or separate analysis of people with Simonart's band.[23] Though evaluated in several manners, the initial cleft width was also positively related to the prevalence of palatal fistulas by some authors,[24] though others [25] failed to consider this possibility. Some authors state that the best age for palate repair is around 12 months old [26] or between 12 and 14 months.[27] The American Cleft Palate-Craniofacial Association (1993) recommends lip repair within the first 12 months of life and first palatoplasty up to 18 months. Rates of fistula formation after primary palatoplasty range from 0% to 78% within the literature, while rates of recurrence vary from 10% to 65%.[28] the current study considered the subsequent location of fistulas: anterior region of the palate, medium region of the palate, and transition between hard and mouth, revealing greater occurrence (59.11%) at the anterior region, followed by the medium region (36.08%) and minimal was observed in transition between hard and lip yet as soft palatal region. These regions also are reported within the literature because the most prevalent, mentioning the anterior region of the surface,[29] medium region of the surface,5 and transition between hard and tongue,[30] the latter considered more at risk of fistulas thanks to the greater tissue tension due to the greater cleft width at this region.[1] Determining the prevalence of palatal fistulas, which can limit and interfere with the function and quality of lifetime of individuals with congenital abnormality and palate, is key to permit the professional staff to assess its own outcomes. It allows a conscious and responsible evaluation of the care being delivered and therefore the adequacy of the protocol if necessary, benefiting the several specialties involved within the rehabilitation of cleft lip and palate. It allows the reduction of costs for the hospital by reducing the amount of secondary surgeries and consequently the anaesthetic-surgical risk, still as assuring the proper standardization and adequacy of the standard of treatment offered to the patients.

6. CONCLUSION

Closure of fistula located at any a part of physique may be a surgical challenge so as Palatal fistula. By knowing and evaluating the factors related to development of palatal fistula, help us to standardize the surgical techniques to prevent/reduce the incidence of fistula formation. This helps to enhance the results by avoiding the necessity for an additional anaesthesia,

hospital stay, number of operations must repair the fistula, decrease follow-up appointments and improve overall patient's satisfaction

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