Original Research Paper

Volume - 15 | Issue - 12 | December - 2025 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Paediatric Surgery

ANORECTAL MALFORMATION WITHOUT FISTULA ; OUR INSTITUTIONAL EXPERIENCE FOR PAST 5 YEARS

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ABSTRACT

Background: Anorectal malformation (ARM) without fistula FIG 1 occur in approximately 5% of all cases of ARM (1). The overall incidence of ARM is about 1 in 2,500 to 5,000 live birth in which non- syndromic association constitutes one third of cases and non-syndromic without fistula association is estimated to range between 1 in 25,000 to 50,000 live births(2).

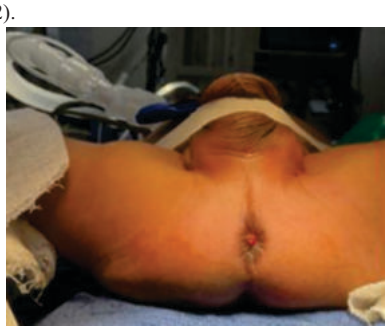

Fig 1 – Good Looking Perineum with Well Formed Anal Dimple Without Fistula

Method: This is a retrospective review of medical records for past 5 years between October 2019 to October 2025 in a tertiary care center. Out of total 795 cases of ARM , 431 were considered as Low ARM with most common association with perineal fistula and without fistula cases were 5 cases with 2 syndromic association (Down's) in which one case was associated with Hirschsprung disease(3) Fig 2(A,B) and Downs' syndrome associated with fistula was 3.

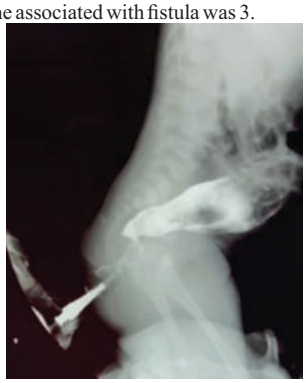

Fig 2A Barium Contrast Enema for Demonstrating Transition Zone

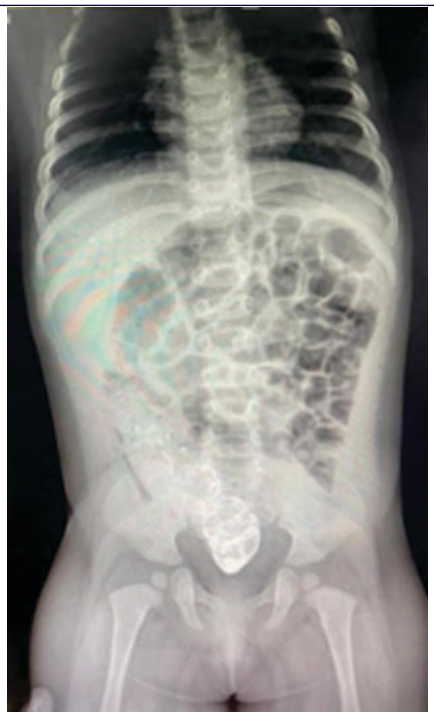

Fig 2B Following 24 Hours- retention of Contrast Seen.

Results: Of 574 males and 221 females, our institute incidence of ARM without fistula is 5 . Association of other anomalies were less likely when compared with intermediate or high ARM . The approach was via perineum – posterior triangular anoplasty was done. The followup is between 1 month to 4 years were the prognosis ie voluntary bowel control was good in ARM without fistula , even in syndromic association when compared to with fistula patients who present with incontinence / constipation(4).

Conclusion: We present these cases as review of literature for ARM without fistula was found only to be very few . The approach in one of the article was considered to be posterior sagittal approach(1) , in view of presence of common wall between rectum- urethra in males , in females rectum- vagina though the approach for cases without fistula was perineal (anoplasty) in our institute.

KEYWORDS : Anorectal Malformation, Without Fistula, Down's Syndrome, Anoplasty

INTRODUCTION

Anorectal malformation (ARM) without fistula occur in approximately 5% of all cases of ARM. The overall incidence of ARM is about 1 in 2,500 to 5,000 live birth in which non- syndromic association constitutes one third of cases and non-syndromic without fistula association is estimated to range between 1 in 25,000 to 50,000 live births. This condition is rare in females accounting for <1% of all female ARM cases in some studies (5) .

Presence of Trisomy 21 is seen in 2 cases , out of which one case was associated with Hirschsprung disease were the child presented with constipation and progressive distension (initially operated elsewhere).

Method

A retrospective review of the medical records of patients with ARM without fistula was performed for a period of 5 years between October 2019 till October 2025. From a series of 795 cases of ARM , total cases 5 were presented as ARM without fistula were one case was operated outside and the child presented with constipation and progressive distension , later in our institute we diagnosed it as Hirschsprung disease following rectal biopsy, were subsequently pull through was done(6)

Information related to anatomical and prognostic factors were compared following segregation of cases initially as ARM without

fistula following cross table lateral view xray (7) after 16-24 hours of birth FIG 3.

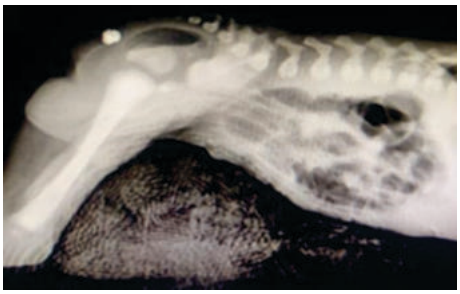

Fig 3 Cross Table Lateral View Xray Showing Bowel Gas Below I Point – evidence of Low ARM .

RESULTS

Of 795 cases of ARM with male female ratio of 3:1 , a total of 5 cases without fistula in which 2 cases were of syndromic association .

In non syndromic cases following 16-24hours of birth , prone cross table lateral view xray was done and cases were segregated to be low ARM without fistula and in one of the case we also measured pouch perineal distance FIG 4 (8) which was <1cm and hence we did a posterior triangular anoplasty FIG 5.

Fig 4 – Ultrasound Perineum – Measuring Pouch Perineal Distance

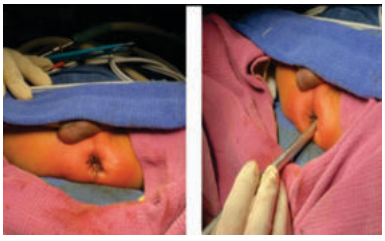

Fig 5 Posterior Triangular Anoplasty with Patency Ensured with Hegar Dilator .

In syndromic case (Down's) , 1 case was on ostomy (done elsewhere) and via PSARP approach neoanus was created and other case was associated with Hirschsprung disease. Totally downs' with fistula cases were 2. Total number of death relating to Anorectal malformation cases are 27 with 1 syndromic case mainly due to sepsis and other associated anomalies.

Association with other anomalies were similar to cases with fistula and was mainly associated with renal agenesis and association of VSD in Down's child(9) .

The outcome was seen in 312 cases which were on followup between 1 month to 4 years. The voluntary bowel movement was were preserved in case of Low ARM without fistula when compared to other cases though formation of sphincter complex and damage of sphincter complex during surgery should be considered.

DISCUSSION

The recent embryology behind the formation of ARM (10) is mainly due to cloacal membrane(CM) maldevelopment especially dorsal CM. The urorectal septum does not fuse with CM instead CM ruptures and fuses with URS . The dorsal part of CM ruptures to form anal orifice.

The incidence of ARM's without fistula is less common and preponderance of this defect in males is very well seen from above data. Even though ARM's without fistula is considered to be benign condition , the common wall between rectum – urethra/vagina is more which leads to difficulty in separation and hence PSARP approach is recommended , though we did posterior triangular anoplasty nearly at 24 hours following PTLV (prone cross table lateral view).

The syndromes which are published other then down's are Opitz and Apert syndrome and also microcephaly, absent corpus callosum , bilateral coloboma (1).

Patients born with ARM without fistula have a good functional prognosis particularly if they are non syndromic. More larger study is required to compare the approach via perineum or PSARP , for its functional outcome.

REFERENCES

1. Bischoff A, Frischer J, Dickie BH, Peña A. Anorectal malformation without fistula: a defect with unique characteristics. Pediatric Surgery International. 2014;30(8):763-766. doi:10.1007/s00383-014-3527-5
2. Smith CA, Avansino J. Anorectal Malformations. [Updated 2023 Aug 8]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK542275/
3. Mundt E, Bates MD. Genetics of Hirschsprung disease and anorectal malformations. Seminars in Pediatric Surgery. 2010;19(2):107-117. doi:10.1053/j.sempedsurg.2009.11.015
4. Rintala RJ. Fecal incontinence in anorectal malformations, neuropathy, and miscellaneous conditions. Seminars in Pediatric Surgery. 2002;11(2):75-82. doi:10.1053/spsu.2002.31805
5. V Upadhyaya, A Gangopadhyaya, A Pandey, D Gupta, A Upadhyaya. Low anorectal malformation in females without fistula: A rare entity. The Internet Journal of Surgery. 2006 Volume 12 Number 1.
6. Fan, J., Liu, M., Lin, Y., He, Y., & Fang, Y. (2023). Anorectal malformation combined with Hirschsprung's disease: a case report. Frontiers in pediatrics, 11, 1182342. https://doi.org/10.3389/fped.2023.1182342
7. Er A, Campos A, Murphy A, et al. Pediatric abdomen (prone cross-table lateral view). Reference article, Radiopaedia.org (Accessed on 19 Nov 2025) https://doi.org/10.53347/rID-77202
8. Hosokawa T, Takahashi H, Tanami Y, et al. Comparison Between the Pouch-Perineum Distance in Neonates With a Low-Type Anorectal Malformation With and Without an Opened Fistula: Pitfall of Measuring the Pouch-Perineum Distance on Sonography. J Ultrasound Med. 2018;37(12):2797-2802. doi:10.1002/jum.14636
9. Ratan SK, Rattan KN, Pandey RM, Mittal A, Magu S, Sodhi PK— Associated congenital anomalies in patients with anorectal malformations–a need for developing a uniform practical approach. J Paediatr Surg 2004; 39(11): 1706-11. doi:1016/j.jpedsurg.2004.07.019
10. Miyake Y, Lane GJ, Yamataka A. Embryology and anatomy of anorectal malformations. Seminars in Pediatric Surgery. 2022;31(6):151226. doi:10.1016/j.sempedsurg.2022.151226