



## **HYDROCELE OF THE CANAL OF NUCK IN PEDIATRIC PATIENTS: LAPAROSCOPIC TREATMENT**

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### **ABSTRACT**

The canal of Nuck is an abnormal open peritoneal pouch that extends into the female labia majora, first described by Anton Nuck in 1691. In females, hydrocele of the canal of Nuck (HCN) is one of the many causes of inguinal swelling. The canal is the result of obliteration failure. Hydrocele of the canal of Nuck is a very rare cause of inguinal swelling in female infants and children. It results from the failure of obliteration of the distal portion of evaginated parietal peritoneum within the inguinal canal, which forms a sac containing fluid. On physical examination, HCN is frequently misdiagnosed as an incarcerated inguinal hernia, but ultrasonography can easily identify it as a round, hypoechoic lesion. HCN in females is similar to cord hydrocele in males, but it is less common. The aim of this study is to look at the effectiveness of laparoscopic intracorporeal hydrocelectomy with high ligation in treating HCN in children. From March 2016 to August 2016, a retrospective chart review of records of female paediatrics aged 10 years who were treated for inguinal swelling at tertiary hospital in India. Although the number of patients in this study (n 25) may appear small when compared to the number of patients in studies on other diseases, the prevalence of HCN in paediatric patients with inguinal swelling has previously been reported to be as low as 1%, whereas I found it in 25 (1.9 percent) of 1300 patients. If more patient data is accumulated, the results can be republished. This series had a mean follow-up period of 30.1 months. Although no patients had recurrences, more time is needed to confirm the results' durability.

**Key words** Hydrocele, Laparoscopic Treatment, and Paediatric Patients.

### **INTRODUCTION**

The canal of Nuck is an abnormal open peritoneal pouch that extends into the female labia majora, first described by Anton Nuck in 1691 [1]. In females, hydrocele of the canal of Nuck (HCN) is one of the many causes of inguinal swelling. The canal is the result of obliteration failure [2]. Hydrocele of the canal of Nuck is a very rare cause of inguinal swelling in female infants and children [3, 4]. It results from the failure of obliteration of the distal portion of evaginated parietal peritoneum within the inguinal canal, which forms a sac containing fluid. On physical examination, HCN is frequently misdiagnosed as an incarcerated inguinal hernia, but ultrasonography can easily identify it as a round, hypoechoic lesion [5, 6]. HCN

in females is similar to cord hydrocele in males, but it is less common. HCN is found in 1% of paediatric females with inguinal swelling. In both paediatric males and females, complete excision is the recommended treatment for inguinal hydrocele [7, 8]. Inguinal disease has recently become a popular target for laparoscopic surgery. It has previously been reported on the effectiveness of laparoscopic intracorporeal hydrocelectomy for cord hydrocele in paediatric males [9].

The present study has described the use of laparoscopic intracorporeal hydrocelectomy in the treatment of HCN in children [10, 11, 12].

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**Aim and Objective:**

The aim of this study is to look at the effectiveness of laparoscopic intracorporeal hydrocelectomy with high ligation in treating HCN in children.

**Material and Methods:**

From March 2016 to August 2016, a retrospective chart review of records of female paediatrics aged up to 12 years who were treated for inguinal swelling at Government Thiruvannamalai Medical College and Hospital in India, was conducted. During that time, 25 patients with inguinal swelling were diagnosed with HCN using ultrasonography. Our Hospital's Institutional Review Board gave their approval to this study. All procedures were carried out in the supine position with the patients under general anesthesia. A 3.0-mm camera and instruments were included in the laparoscopic system. A trans umbilical incision was made, and a trocar was inserted to create a pneumoperitoneum with CO<sub>2</sub> at 6 to 8 mm Hg was maintained. Two more instruments were inserted into the lateral abdomen through separate 3.0-mm stab incisions. To reduce the size of the large hydrocele, percutaneous needle aspiration was used. Hydrocelectomy was performed intracorporeally. The right lateral port site was used to extract the resected hydrocele. High ligation was used to close the peritoneum, and dermal bond was used to close the incision.

**Results and Discussion:**

Table 1 lists the characteristics of the patients. All of the patients had inguinal swelling. The hourglass type buried in the canal (17 cases) and the protruding intra-abdominal type (8 cases) of encysted HCN was seen in the laparoscopic view. All of the patients had intracorporeal hydrocelectomy with a high ligation of the Nuck canal. Only very small wounds were visible at the three port sites

immediately after surgery .After the operation, all of the patients were discharged within 24 hours. On follow-up, there were no complications or recurrences. Table 1 shows the patient characteristics.

Inguinal swelling was present in all of the patients. The hourglass type buried in the canal (17 cases) and the protruding intra-abdominal type (9 cases) of encysted HCN were seen in the laparoscopic view. All of the patients had intracorporeal hydrocelectomy with a high ligation of the Nuck canal. Only very small wounds were visible at the three port sites immediately after surgery. After the operation, all of the patients were discharged within 24 hours. On follow-up, there were no complications or recurrences.

HCN in girls is similar to cord hydrocele in boys, but hydrocele is less common in girls than in boys. The results of total laparoscopic hydrocelectomy in the treatment of cord hydrocele in boys were the first to be published. Both girls and boys who underwent laparoscopic hydrocelectomy had similar procedures (hydrocelectomy and high ligation) and treatment outcomes. There are some limitations to this study. Only laparoscopic procedures were performed, so there was no way to compare them to open surgery. Because HCN in children is uncommon, there are likely to be few series of >20 cases available for comparison. Although the number of patients in this study (n 25) may appear small when compared to the number of patients in studies on other diseases, the prevalence of HCN in pediatric patients with inguinal swelling has previously been reported to be as low as 1%, whereas I found it in 25 (1.9 percent) of 1300 patients. If more patient data is accumulated, the results can be republished. This series had a mean follow-up period of 30.1 months. Although no patients had recurrences, more time is needed to confirm the results' durability.

	Study group	Percentage
Age (Y)	3.28 ±2.14	
Laterally		
Right	12	48%
Left	13	52 %
Location of HCN		
Inguinal canal	15	60 %
Intra- abdominal cavity	10	40 %
Operating time (min)	16.9 ±4.21 (16- 32)	
Post-operative (h)	7.21 ±2.23 (6- 19)	
Complications	0	
Recurrence	0	
Follow up (moon)	31.21 ±14.2 (6.- 52)	

**Conclusion:**

Despite the fact that HCN in females is less common than cord hydrocele in males, it appears to be equally amenable to laparoscopic intracorporeal excision, as 25 pediatric

females with HCN were successfully treated. In children, laparoscopic hydrocelectomy with high ligation is an effective treatment for HCN.

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