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INTRATHORACIC TESTIS IN CONGENITAL DIAPHRAGMATIC HERNIA: A NOVEL APPROACH

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Introduction

Congenital diaphragmatic hernia (CDH) is a developmental defect of the diaphragm causing herniation of abdominal contents into thoracic cavity. Contents of the hernia are usually intra-abdominal or retroperitoneal organs. Rarely, testis may herniate through the defect. We present the first reported case of successful delayed laparoscopic examination and orchidopexy for intrathoracic right testis in left-sided Bochdalek hernia.

Case Summary

A full-term male child was referred to us for left CDH. Repair was done at day 6 of life. Herniated contents included large bowels, small bowels, stomach, spleen, pancreas, part of right kidney and right testes. All contents were reduced into the peritoneal cavity. Subsequently, the child underwent laparoscopic assessment, adhesiolysis and right open orchidopexy at the age of 1 year 10 months old. Upon examination under anaesthesia, right hemiscrotum was underdeveloped with impalpable right testis. The right testis was adhered to the anterior of spleen as seen in Figure 1. However, it was able to bring down to right deep inguinal ring without tension after adhesiolysis as seen in Figure 2. Decision was made for right orchidopexy and the testis was brought down to scrotum. The testis was a good size and viable.

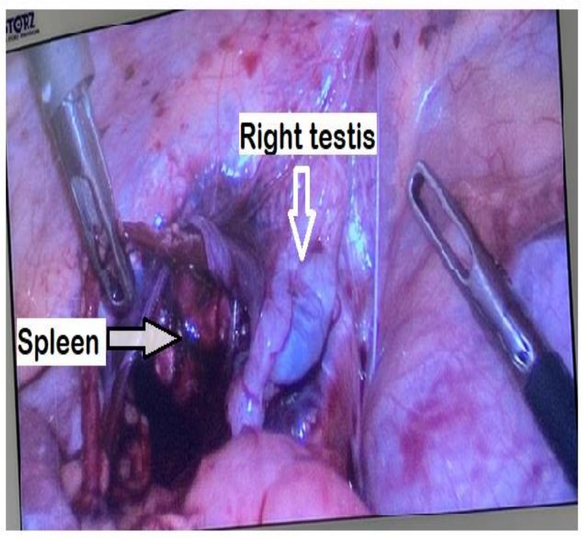

Figure 1: Right testis was adhered to the anterior of spleen

Discussion

The pathogenesis of CDH remains unclear. It was initially thought that CDH is due to the failure of closure of pleuroperitoneal canal during 8th to 10th weeks of gestation [1,3]. This causes abdominal organs to herniate into the chest during the time of lung development. The herniation leads to fetal abnormal breathing movement and results in lung immaturity. Subsequently, leading to pulmonary hypoplasia. Another theory is that lung hypoplasia is the causal factor of CDH. Impaired development of post hepatic mesenchymal plate (PHMP) which is closely related to lung development may lead to defective diaphragm [4].

The most common type of CDH is posterolateral or known as Bochdalek hernia that accounts for 70 - 75% of cases. Majority would be on the left side (85%) [2]. It is rare for the testes to be among the herniated contents. Undescended testis affects in 3% of full-term male baby with 30% in premature ones [5,6]. The proximity to pleuroperitoneal fold together with shared developmental processes provide an evidence in association between CDH and UDT [1].

The primary treatment for undescended testis is surgical repositioning of testis into the scrotum or known as orchidopexy. In case of UDT in CDH, orchidopexy is usually performed a couple years later as in work of Hisano et al by laparoscopic technique [7]. This method is able to localize position of testis accurately and safely and minimizes complication in postoperative patients with CDH. In our case here, we supported and performed a laparoscopic approach due to these reasons after a year from the first surgery. We caution against performing an orchidopexy during the initial surgery to avoid prolonged anaesthesia and higher risk of damage to the neonatal testis during fixation.

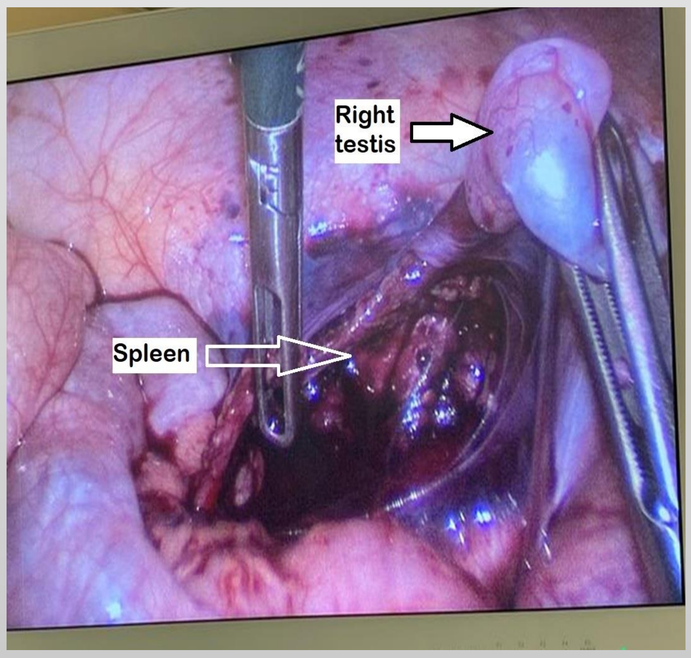

Figure 2: Adhesiolysis was performed to separate the testis from the spleen

Conclusion

In summary, delayed laparoscopic examination and orchidopexy is a novel approach in this case to avoid prolonged anaesthesia in an already hypoplastic lung. Additionally, it avoids higher risk of damage to the neonatal testis during primary fixation.

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