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RESEARCH ARTICLE

CHILAIDITI SYNDROM IN CHILD DIAGNOSTIC TRAP (CASE REPORT)

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Abstract

Introduction Chilaiditi syndrome is a rare congenital anomaly. Less reported, especially in pediatric patients. It is anatomically defined as the interposition of the intestinal segments to the hepatodiaphragmatic region. Observation We present a rare case of 10-year-old boy who presented to our emergency department complaining of chest and abdominal pain after trauma, a digestive perforation was suggest initially , but the CT scan retained the diagnosis of chiladiti syndrome. The patient was conservatively managed, the pain was resorved and the clinical and biological evolution was very favorable. Conclusion Pneumoperitoneum poses an important diagnostic sign determining the urgency of management of patients, should be differentied to Chilaiditi sign characterized by specific radiological findings , to provide unnecessary surgical management. Keys words ; syndrom, Chiladiti, pneumoperitoneum.

Introduction:-

Chilaiditi syndrome is a rare congenital anomaly. Less reported, especially in pediatric patients. It is anatomically defined as the interposition of the intestinal segments to the hepatodiaphragmatic region. There may be interposition both at the level of the small intestine and the large intestine. Although it is generally seen as an asymptomatic radiological finding, it can also occur with abdominal pain, nausea, vomiting and respiratory distress. It was first reported in 1910 by a Vienna radiologist, Demetrius Chilaiditi, in three asymptomatic cases .(1)

This pathology is more encountered in the old person ; it is rare in children .(2)

Case Report:

This is a 10-year-old boy, followed for chronic constipation , with symptomatic treatment.

The history of the disease dates back a week after her consultation , when the patient falled from the bicycle, causing direct trauma to the epigastrium by handlebars.

The patient presented chest and abdominal pain without fever or other associated digestive signs. Initially, an analgesic treatment was prescribed ,since the persistence of the symptoms, the parents consulted in the emergency department 7 days after the trauma for management.

The clinical examination on admission found a child in good general condition, afebrile at 37.2 °, eupneic with a respiratory rate of 22 cycles per minute, a normal blood pressure of 12/7 and a heart rate of 92 beats per minute. his

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conjunctiva was normo colored, the thoracic examination had objectified a right chest pain on palpation with regard to the 6th dimension, the vesicular murmurs were well perceived and the vocal vibrations well transmitted, The abdominal examination had found an epigastric parietal hematoma of 2 cm on long axis, with pain on palpation at this level, the abdomen was soft at the palpation without defense or tenderness.in the rest of the physical examination there were no significant findings..

Since the pain and the mechanism of the trauma, we decided to complete the examination with a X-ray (figure1) and a blood test: blood count and a complete ionogram with pancreatic assessment (amylasemia and lipasemia) .

The blood test was normal , nevertheless, the x-ray had revealed a pneumoperitoneum.

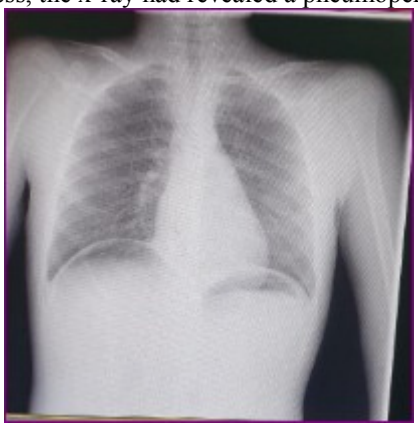

Fig 1:- X-ray showed pneumoperitoneum.

In consideration ofthe location of the trauma and the slow and progressive evolution of clinical symptoms , a digestive perforation , probably duodenal was suggested.

In view of the radioclinical discordance , radiological investigations were more extensive in this case.

The CT scan was demonstrated presence of air in the right subdiaphragmatic region, which supported the hypothesis of the presence of pneumoperitoneum.

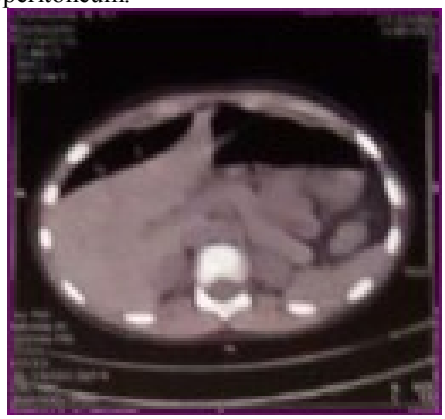

Fig 2:- CT scan revealed air in right subdiaphragmatic region.

Therefore, we decided to hospitalise the patient ,He was managed with intravenously administered fluids, stop oral feeding, and pain control and to temporize surgical management.the symptoms have almost completely subsided, the clinical and biological evolution was very favorable, except constipation.

The pain was resolved with conservative treatment and he was in a stablecondition.

After multidisciplinary consultation , a reinterpratation of CT scan demonstrated Hepatodiaphragmatic interposition of a colon,

The right hemidiaphragm was elevated above the liver by the transverse colon, which it was distended .the diagnostic of chiladiti syndrome was confirmed. the CT scan revealed also presence of a dolichocolon.

The context of the trauma led to a false diagnosis ; we shoud have perceive haustral markings of the colon under the diaphragm, showed in X-ray .

Than, the symptoms were improved with hydration, intestinal decompression, laxative , the radiological follow-up showed disappearance of the air image above the liver.

Discussion:-

Introduction

Hepatodiaphragmatic interposition of a colon is rare in children which usually presents as an asymptomatic radiological sign known as Chilaiditi sign or with gastrointestinal or respiratory symptoms called as Chiladiti syndrome ,This entity was first described by Demetrius Chilaiditi in 1910.(3,4)

Chilaiditi sign has an incidence of 0.025%-0.28% worldwide with a malepredominance (male to female, 4:1) chiladiti.(4)

It is more commonly seen in the elderly wherein the incidence is about 1% but can also be seen in children below 5 months of age, with a male-female ratio of 4:1 through all age ranges.(5)It is an entity of rare presentation , and its diagnosis increases with the age and the amount of abdominal fat.(6)Despite this well-described epidemiological behavior, when reviewing theliterature, extraordinary case reports of neonatal affectation5 and many others in the pediatric population of different ages4,6 can be found. Consequently, it is necessary that pediatricians have subject knowledge.(6)etiopathogenic factors

The cause of Chilaiditi's syndrome still remains unknown, though it is likely multi-factorial.(7)

Congenital and anatomical alterations have been mainly seen in children. (6)
++many factors have been implicated in this entity's development.(6)

The most common cause is the flaccidity and elongation of the intestinal suspensory and hepatic ligaments. (6)

However, occur during certain anatomical variations rarely encountered:hypotrophy of the liver or agenesis of the right lobe of the liver, elongation of the suspensory ligament of the liver; lengthening of the colon (dolichocolon), poor fixation or poor position of the colon, congenital pathologies of the small intestine or the diaphragm with elevation of the right diaphragmatic hemicupola (eventration), relaxation or agenesis of the ligament suspensor of the mesentery.

These characteristics are noticed in 6% of patients at birth. (2) Furthermore, the predisposing factors include hepatic, intestinal,diaphragmatic, and miscellaneous Factors.(6)

Huang et al. reviewed 13 children with Chilaiditi syndrome in the past 15 years, 6 males and 7 females aged 6–11 years old. He found predisposing factors as aerophagia in 46.2%, diaphragmatic eventration in 23.1%, constipation in 23.1%, and blunt trauma in 7.7%. The most common manifestation was an abdominal pain in 69.2% and respiratory distress in 23.1% of patients. Only four with recurrent symptoms had a surgical correction .(3)

In addition, in adults other causes are incriminated including cirrhosis , chronicconstipation, increased abdominal pressure (pregnancy) , obesity], enlargementof bases of the rib cage due to chronic obstructive pulmonary disease with a large space in which colon interposition can occur .(2)

Anatomical shapes

Three clinical presentations have been described for this condition:
1) transverse colon or small intestine interposition in the right subphrenic space;
2) colon or stomach interposition in the right extraperitoneal space;
3) transverse colon interposition in the right posterior subphrenic space.

The presence ofair will be evident in the subdiaphragmatic space withthese forms, this finding has great clinical importance when is accompanied by pain since it doesn't always imply a surgical emergency7. Therefore, the clinical suspicion and awareness of this pathological condition could prevent unnecessary surgical interventions (6).

Diagnosis

The diagnosis is usually found incidentally on images obtained for otherdiagnostic reasons(8).Most of the casesremain without complaints and are diagnosed accidentallyduring radiologic investigations. Hepatodiaphragmaticinterposition may cause acute, chronic or recurring complaints including respiratory distress and chest pain related to the respiratory system and abdominal pain, vomiting, abdominal distension, decrease in appetite related to the digestive system.

It can also lead to conditions which require urgent surgical intervention including volvulus, incarceration and perforation .(4,9)

In our patient ; the diagnosis was revealed following a trauma, suggesting an intestinal perforation.

Colonic interposition (Chilaiditi sign) is defined by the presence of air below the right diaphragm on a radiograph. To diagnose Chilaiditi sign based upon radiologic findings, the following criteria must be met: The right hemidiaphragm must be adequately elevated above the liver by the intestine, the bowel must be distended by air to illustrate pseudopneumoperitoneum, and the superior margin of the liver must be depressed below the level of the left hemidiaphragm.

While is extremely rare, Chilaiditi's sign is an important imaging finding since the differential diagnosis possibilities such as pneumoperitoneum, diaphragmatic hernia, intestinal pneumatosis, and hydatid cyst.(6)

The important differential diagnoses of this radiographic sign include pneumoperitoneum and subphrenic abscess. The finding of normal plicaecirculares or haustral markings of the colon under the diaphragm can rule out these more serious entities. Moreover, changing the position of a patient with Chilaiditi sign will not change the position of the radiolucency, unlike in a patient with free air .(3; 1; 10)

The vast majority of cases, like ours, correspond to incidental findings when doing a radiography for other reasons.

In suspected cases, further radiologic investigations should be performed .(9)

Though haustral markings are diagnostic of colonic interposition, 3 further imaging (ultrasound, CT scan) may be needed, if plain fi lms are not conclusive of Chiladiti's syndrome in acute abdomen. Awareness of this condition could help reduce unnecessary exploratory laparotomies for misdiagnosed pneumo-peritoneum.(11)

as the case of our patient, CT scanconfirmed diagnosis of chiladitisyndrome ,avoiding urgent surgical intervention.

Sato et al. reported that ultrasound is helpful in diagnosing Chilaiditi syndrome.The cases can be diagnosed by X-ray and CT of abdomen which provides mored detailed information. Ultrasound of abdomen is helpful in distinguishing between Chilaiditi's syndrome an pneumoperitoneum.(12)

Some authers prorpose the barium enema examination was requested in ordertodiscard other pathologies, considering existing association of Chilaiditi's syndrome with other congenital malformations as intestinal level and the importance of discarding a possible differential diagnosis.givin in gastrointestinal symptoms(abdominal distention and constipation).(6)

Similarly, when using ultrasound, altering the position of a patient with Chilaiditi sign will not lead to a change in the location of the gas echo, as opposed to a patient with pneumoperitoneum.19 If a radiograph or ultrasound cannot clearlydetermine whether the subdiaphragmatic air is free or intraluminal, a computed tomography scan is recommended to establish an accurate diagnosis, assuming that the patient is clinically stable.(10)

Differential diagnosis

The common differentials are the subphrenic abscess, pneumoperitoneum, retroperitoneal masses, and posterior liver lesions. It can be confused with CDH, congenital cystic adenomatoid malformation of the lung, internal hernias,

bowel obstruction, volvulus, intussusception, ischemic bowel, or inflammatory conditions, such as appendicitis and diverticulitis.(3, 10)Interestingly, there have been reports in the literature of bowel interposition accompanied by a right-sided Bochdalek hernia. Although Chilaiditi sign is a rare entity overall, this challenging diagnosis should be considered when a patient presents with abdominal and/or respiratory symptoms and has a radiologic finding of air below the right diaphragm.(10)

Treatment

Conservative management is often sufficient in a child with symptomatic Chilaiditi syndrome .(4)

In general, patients with Chilaiditi's sign do not require managing. On the otherside, patients with Chilaiditi's syndrome normally improve with conservative symptomatic management, noticing that thesymptoms have improved with bed rest, hydration, intestinal decompression, laxatives, and at times enemas.

Only some patients will need surgery, those cases with persistent pain or development of complications, within which has been described: intestinal obstruction, perforation, ischemia, and volvulus.(13,6)

In these cases the Surgical treatment that is controversial, since in addition to the specific management of each of these complications, some authors recommend performing hepatopexy, fixation of the colon to the peritoneum at the umbilical level, or even subtotal colectomy. Other authors indicate surgical treatment in the presence of recurrent symptoms.(14)

Some others proposeminimally invasive colopexy should be considered as a possible treatment option for severe cases of Chilaiditi syndrome in the pediatric population , as long term abdominal pain and vomiting, which did not improve with laxatives and dietary changes.(15)

Conclusion:-

Pneumoperitoneum poses an important diagnostic sign determining the urgency of management of patients, should be differentied to Chilaiditi signcharacterized by specific radiological findings ,in order to provide unnecessary surgical management and complications.

Références:-

1. Sabri, D., Emrah ,Ş.(2015) : Chilaiditi Syndrome in a child patient: a case report . Turkısh Journal of Clinics and Laboratory., 10.18663/tjcl.46222
2. Sangwa .M. C, Kitembo ,F. M ., Kakinga, Z. M. , Mukonda ,S .N., Muhau P. P. , Mapatano ,S ., Cham ,L. C. , Monga ,K. J.(2014) : Syndrome de Chilaiditi chez un nouveau-né, à propos d'un cas (Pan African Medical Journal)., 10.11604/pamj.2014.19.239.5059
3. 3- Shruti , V. , Sapna, S .(2018): Chilaiditi syndrome: An unusual post-operative complication of congenital diaphragmatic hernia .Indian J Case Reports ., 10.32677/IJCR.2018.v04.i05.007
4. 4- Havva ,E, Selcuk ,Y ., Seda, O., Bayram ,O., Kadir, A.(2016): Chiladiti Syndrom.J Pediatr .,10.1016/j.jpeds.2016.02.060
5. 5-Kamiyoshihara, M., Ibe, T., Takeyoshi , I.(2008) : Chilaiditi's sign mimicking a traumatic diaphragmatic hernia. Ann Thorac Surg .,2009;87:959-61
6. 6- Oscar, C. J., María, B., Edwin P. M, Juan, D. C., Rodrigo, D .,(2017) : sign and syndrome: rare conditions but diagnostically important in pediatrics. Rev Chil Pediatr., 10.4067/S0370-41062017000500010
7. 7- Rajender, M., Vinay, K.A., Renuka ,R., Raghukanth ,A.,Shruthi ,R.,(2013) : Chilaiditi's Syndrome . Indian J Chest Dis Allied Sci)., 2014;56:117-119
8. 8- Mohamed, M,, Muneer, J., Sami, S, Anas ,M. Saad .,Ramy, A,.(2018) : Chilaiditi syndrome – a rare case of pneumoperitoneum in the emergency department: a case report. journal of medical case reports .10.1186/s13256-018-1804-y
9. 9- Serdar . M.,(2010) : Chilaiditi's syndrome: A case report.(Turk Arch Ped.,10.4274/tpa.46.86
10. 10- Omeed ,M., Richard A., Hodin, MD, FACS.,(2012) : Chilaiditi Syndrome:A Rare Entity with ImportantDifferential Diagnoses.Gastroenterology & Hepatology Review ., Volume 8, Issue 4 April 2012
11. 11- Devasmitha .V,. Rachael ,H., Stephen ,W., Abnormal gas pattern under diaphragm (2012) : BMJ Case Reports .,10.1136/bcr.08.2011.4650

12. 12- Maulik , S. , Shefali ,G .,Jagdish S. (2018) .Chilaiditi Syndrome-A Case Report with Review on Literature .IOSR-JDMS., 10.9790/0853-1709116364
13. 13- A, de Andrès Ganzolez.,C.Lumbreras Torija.,M.Blanco Gutièrrez (2011): Chiladiti syndrome , A case report. Rev Pediatr Primaria .,2011 ; 13 89 – 92
14. 14-Jorge , I.,José, R., María , E,.(2016) : Síndrome de Chilaiditi simulando un neumoperitoneo.canariaspediátrica ·vol. 40, nº3
15. 15- Wayne A. Blevins ., Danielle E. Cafasso ., Minela Fernandez. ,
16. Mary J. Edwards .(2011) :Minimally invasive colopexy for pediatricChilaiditi syndrome. Journal of Pediatric Surgery., 10.1016/j.jpedsurg.2010.11.039.