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Slipped Bilateral Capital Femoral Epiphysis in a Patient Older Than 25 Case Report

Dr. J. Davyt[1], Dr. M. Sosa[2], Dr. R Rey[3], Dr. E. Lemus[4], Dr. P. Agüero[5], Prof. Dr. Beatriz Mendoza[6]

[1,2,4,5] Universidad de la República, School of Medicine, Montevideo, Uruguay 2023

[3] Clinic of Traumatology and Orthopedics,, Universidad de la República, School of Medicine, Montevideo, Uruguay 2023

[6] Clinic of Endocrinology and Metabolism, Universidad de la República, School of Medicine, Montevideo, Uruguay 2023

ABSTRACT

Introduction: The slipped capital femoral epiphysis is the most frequent lesion of the hip in children between the ages of 8 and 15. They are classified according to the stability of the physis in stable and unstable. This pathology needs to be quickly diagnosed and treated due to its consequences. Several predisposing factors have been identified including endocrinological pathologies and genetic disorders. It is a pathology that is extremely rare in people older than 18 years of age.

The Kallmann Syndrome is the association of congenital hypogonadotropic hypogonadism (CHh) a strange disorder caused by the deficient production, secretion or action of the Gonadotropin-releasing hormone (GnRH) and deficient sense of smell (anosmia or hyposmia)

KEYWORDS: slipped capital femoral epiphysis

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INTRODUCTION

The slipped capital femoral epiphysis is the most frequent lesion of the hip in children between the ages of 8 and 15. It happens in 10.8 children out of 100000 (1). It is classified according to the stability of the physis in stable and unstable (1). It can also be classified in mild, moderate, and severe according to the degree of displacement (2)(3). It is a pathology that must be diagnosed and treated quickly due to its morphologic consequences that lead to the loss of the function of the joint early arthrosis due to the femoroacetabular conflict (4)(5). Several predisposing factors have been identified. These include obesity, imbalance of the forces acting in the hip, retroversion of the neck of the femur, endocrine pathologies, (hypothyroidism, hypopituitarism, hypoparathyroidism)

genetic disorders and therapies with growth hormone. This displacement takes place generally through the hypertrophic layer (6)(7)(8). The treatment varies according to the classification It can be in situ fixation, reduction or the different types of osteotomies. (1)(3)(9).

The congenital hypogonadotropic hypogonadism is a rare disorder caused by the deficient production, secretion or action of the Gonadotropin-releasing hormone (GnRH), which is the hormone that regulates the reproductive axis and results in low concentrations of testosterone, deterioration of the spermatogenesis and low levels or normal but inappropriate levels of gonadotrophin (10)(11).The association of CHh with a defective sense of smell (anosmia or hyposmia) that is found in approximately 50% of the patients with CHh is called Kallman Syndrome.

The Kallman Syndrome is due to a failure in the embryo migration of the neurons that produce GnRH from the olfactory placode to the hypothalamus that has as a consequence the decrease of sexual steroids and absence of sexual maturity and absence of secondary sexual characteristics. (1,3) The diagnosis is around 14 years of age, and it is done when the child cannot start puberty. (10)

The treatment consists in a hormone replacement therapy for life and in case of cryptorchidism the testicle will be descended (10)

The aim of this work is to document the case of a young man of 25 years with a slipped bilateral capital femoral epiphysis associated with and endocrine pathology and an immature skeleton.

CLINICAL CASE

It is a 25-year-old patient, Caucasian, Primary school complete, coming from a deprived rural background.

4 years ago, after falling from a horse he presented intense pain at the level of the right hip remaining with pain and

absolute functional inability. The leg was shortened and in external rotation. In that moment it required closed reduction and percutaneous fixation with two screws, having excellent evolution to this moment.

The reason for the consultation 2 years ago was a gonalgia in the right side, of a month of evolution, not related to trauma, which started as something mild but evolved until it became intense, more focalized in the inguinal region until he was not able to move in which moment he decides to go to the Emergency service.

From the physical examination we can see a marfanoid biotype, childlike genitalia micropenis (hypogonadism), no facial or axillar hair and scarce pubic hair. No spontaneous erections.

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In the osteoarticular we can see the right inferior limb shortened in external rotation (fig 1) Both the internal rotation and the flexing of the hip were blocked and painful. The patient cannot carry weight and walk.

The mobility of the left hip is complete and painless as well as both knees that are also stable and do not present joint effusion.

X rays were taken from the hip form the front (fig2) and the side of the left hip (fig 3) that shows the characteristic displacement of the slipped capital femoral epiphysis and elevation of the metaphysis with anterior displacement. In the left hip we can observe the fixation with 2 screws in an excellent position without elements of osteo necrosis or arthrosis

Fig. 1

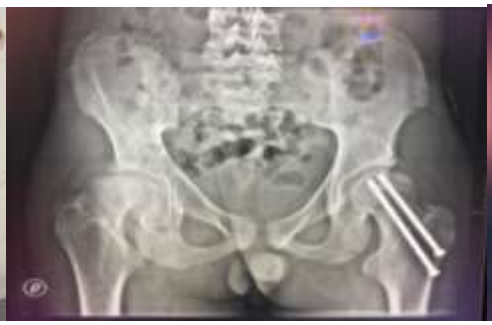

Fig. 2

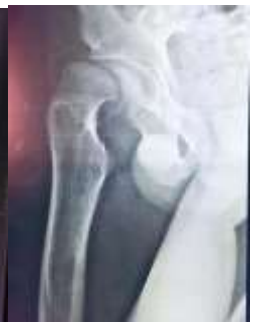

Fig. 3

To complete the evaluation as regards the hip pathology a computerized tomography was done. Figure 4 is a coronal view where we can clearly observe de elevation of the metaphysis and some elements of chronicity in the inferior sector of the head and metaphysis. In figure 5 we can observe a sagittal view where we can clearly see the posterior position of the head. The same can be seen in the axial view in figure 6.

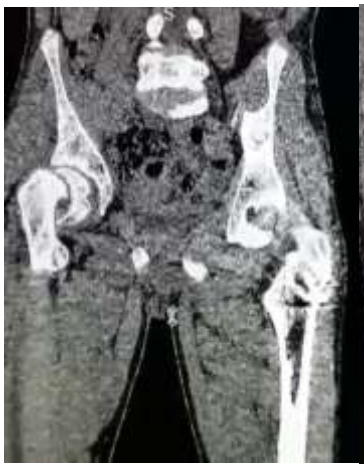

Fig-4

Fig. 5

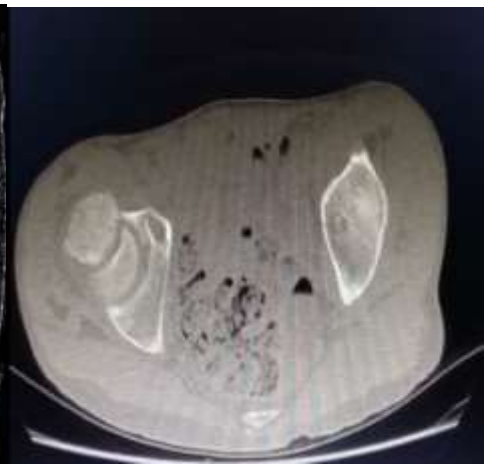

Fig. 6

The preoperative protocol included a multidisciplinary team of endocrinologist, traumatologist, social assistant and physiatrist.

The consultation with endocrinologist was suggested due to the elements of hypogonadism that the patient presented and the association between the hormonal disorders and this kind of pathology at this age described in the scientific literature recruited. We outline from this consultation the descriptor parameters in table 1 very diminished and the evaluation by image of MRI of the cranium of the resto of the hormonal hypophysis axes. In the same que can observe peri callosal lipoma (white arrow) , diagenesis of the corpus callosum(yellow arrow) with absence of the splenius (red arrow) (fig 7,8 and 9). With all this paraclinical exams we arrived at the diagnosis of Kallmann Syndrome.

Table 1

Hormona	Valor	Rango
FSH	0.4	1.5-12.4
LH	0.1	1.7-8.6
TESTOSTERONA TOTAL	13	180-882

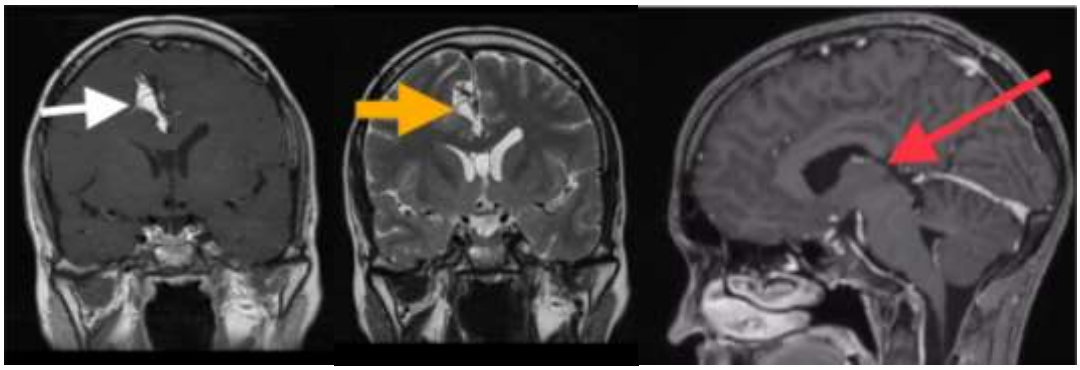

Fig. 7 Fig. 8 Fig. 9

As regards the surgical technique we used regional anesthesia under sedation controlled by anesthetist. The patient was placed on the traction table and an attempt to perform a closed reduction was done but it did not modify the position of the metaphysis. We believe this was due to the time of evolution of the illness. We decided then to perform the anterolateral approach of Watson-Jones (fig 10) to obtain an open reduction, followed by a T capsulotomy. We identified the proximal and superior sector of the metaphysis which presented elements of chronicity such as osteophytes. These were resected through a sub capital osteotomy without luxation with chisel, in order to obtain a bed to reduce the femoral head (fig 11). After preparing the bed we proceeded to reduce and temporarily fixate with Kirschner wires. This was controlled through an image intensifier both in the front and the side of the hip and then we placed 2 cannulated screws of 6.5, 16 and 32 to fixate definitively (fig.12 and 13) To check the vital of the head before closing we performed a perforation with a 1.8 Kirschner needle and we observed bleeding (fig. 14) We performed haemostasis and closing by layers. In the post operative x rays were taken for control (fig 15 and 16).

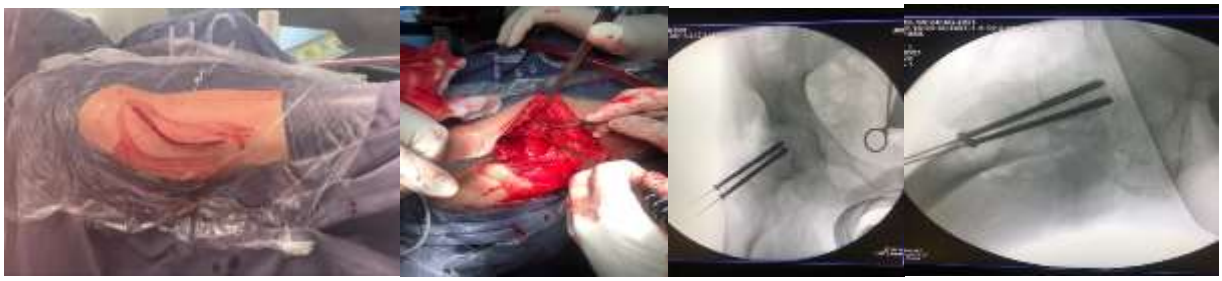

Fig. 10 Fig. 11 Fig. 12 Fig. 13

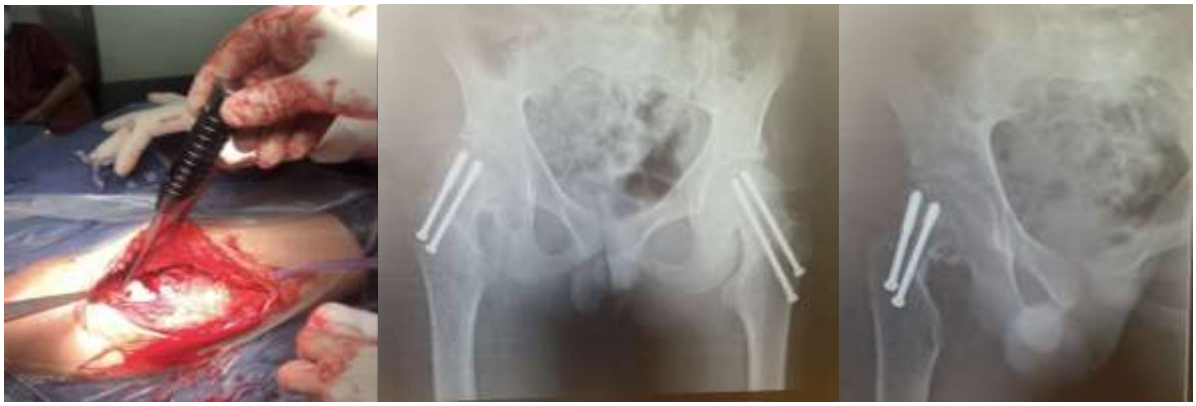

Fig. 14 Fig. 15 Fig. 16

Evolution

The postoperative protocol consisted strictly in the rehabilitation keeping the patient with weight bearing for at least 2 months. It was started 48 hours after the surgery according to the tolerance to pain and passively moving the right inferior limb. He was allowed to move with weight bearing of the affected limb with help.3 weeks after that there was another control with X rays and removal of the surgical stitches. He did not have any pain and with an excellent range of mobility.

4 months after the surgery he comes to consultation without pain, no significant difference between the lengths of the two limbs (fig.17) walking without help and without a limp. As regards the rotation and flexion of the hip he presented a full range of flexion extension (fig.18) completely painless, mild mechanic limitation of rotation (fig.19 and 20). Radiologically we observed an excellent reduction maintaining the one achieved in the surgery. There are no signs of avascular necrosis of the head of the femur. (Fig.21 and 22.

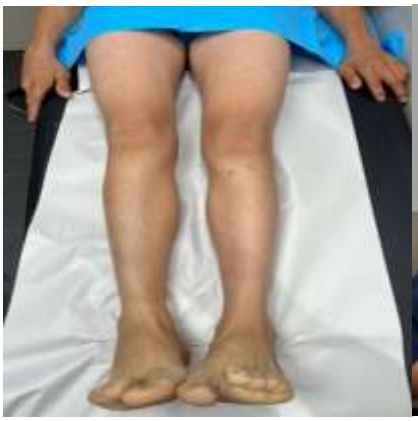

Fig. 17

Fig. 18

Fig. 19

Fig. 20

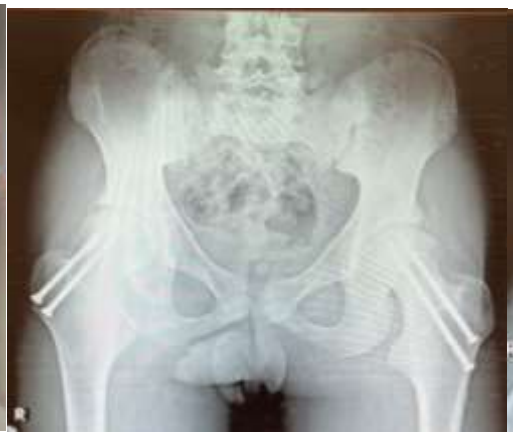

Fig.21

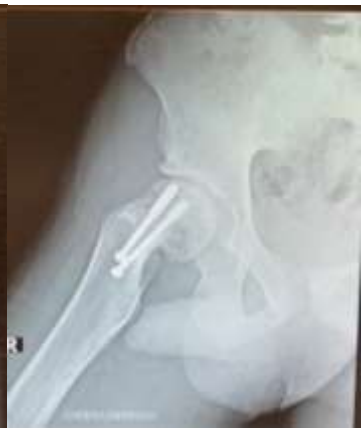

Fig. 22

A last control was performed one year after the surgery The patient is asymptomatic, performing rural tasks without difficulty and without pain. We can appreciate in the X rays the absence of significant necrosis (fig 23 and 24).

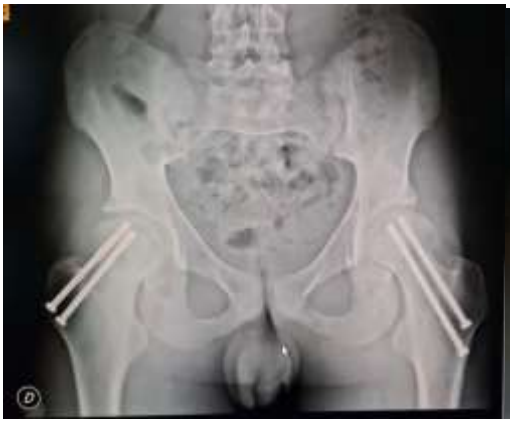

Fig. 23

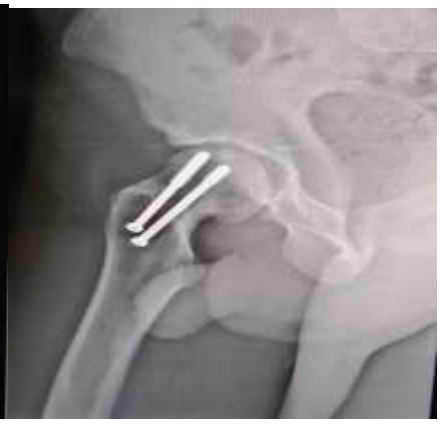

Fig. 24

DISCUSSION

This is an extremely strange case because of the age. There are only reports of cases in the literature as reported by Kwan Soon Song (12). We know that this pathology can be present in children and adolescents (13).

The slipped capital femoral epiphysis is strongly associated with endocrinopathies including hypothyroidism, hyper parathyroidism renal osteo dystrophy and deficit of the Growth Hormone, but the physio pathological mechanism is unclear.

What is stressed is that the base pathology should be treated to avoid complications such as secondary displacements and contralateral epiphysis (6).

Shaw and col. (6) have made some recommendations that help us identify patients that may have an endocrinological pathology when they present this lesion in the hip. They recommend analyzing the hip. They height and weight percentiles.

-If the patient is below percentile 10 (especially in height) we should do a laboratory screening searching for an endocrinopathy.

-If he is younger than 10 years or older than 16 this screening should also be done.

We must ask for TSH, T4, Growth Hormone, PTH and a complete metabolic study.

-The fixation must be adapted to the magnitude of the deformity and the time of evolution. We should strongly consider the contralateral prophylactic fixation (6).

The masculine hypogonadism (Hh) is a clinical syndrome due to the incapacity of the testicles to produce physiological levels of testosterone or enough spermatozoa due to defects at some point of the hypothalamic-pituitary-gonadal axis.

Hh happens when there is an absence of pulsatile activity of the sexual-hypothalamic-pituitary axis (normal or low concentrations of LH and FSH) (14).

The Kallmann syndrome is the most known presentation of Hh in childhood, it is characterized by the association of the deficit of GnRh secretion and infertility, with alteration of smell, which can also associate neurological deafness, defects in the facial media line, shortening of the 4 metacarpal and cardiac and kidney malformations. It appears failure in the progress of puberty, infertility, cryptorchidism and micro penis (14).

CONCLUSION

From our case we can underline the age of the patient, the strong association with hormonal disorders and bone growth, the fact that it was bilateral (the second hip had to be prophylactically fixated previously) that agrees with what is known and the good evolution without complications of his hips in the short term ,but with an uncertain prognosis.

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