



Case Report

Bilateral Congenital Contracture of the Quadriceps Muscle: A Case Report

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ABSTRACT

Introduction- Congenital contracture of the quadriceps muscle can be defined as progressive loss of knee flexion due to fibrosis within the muscle without a history of trauma or intramuscular injection into the thighs. Here in, we report a 2 year-old girl who presented with inability to bend her knees completely. After the clinical and radiological assessment she was diagnosed a case of bilateral congenital quadriceps contracture. We have reported this case because it is extremely rare to see such a case in daily practice.

Case report- The complaint was that child does not walk in a normal pattern. She had been born in full term by normal delivery and her subsequent development was normal. There was no history of local injections or trauma to thigh. She was able to walk independently but with slow steps. There was no obvious deformity and also no muscular wasting. On palpation- the patella on both sides were equal in size and normal. No extension lag of knee joints was detected. Muscle power on both sides was normal. There was no vascular or neurological deficit or any other congenital abnormality. Physical examination revealed that in supine position with hip in flexion, the range of movement of knee joints-right (0-70) left (0-90). In prone position with hips in extension, the range of movements of knee joints was-right (0-45), left (0-80). X-ray pelvis/hips/both knee joints were normal

Discussion- Our patient belonged to mixed type, because of vastus type of symptom as restricted flexion of the knee joint with hip flexion and also the rectus femoris type symptom of restricted knee flexion in the prone position.

Conclusion- This rare childhood disease should be kept in mind so that early diagnosis and treatment might prevent further complications.

Key words- Quadriceps contracture, Congenital, Injections, Stiff knees.

INTRODUCTION

Congenital contracture of the quadriceps muscle can be defined as progressive loss of knee flexion due to

fibrosis within the muscle without a history of trauma or intramuscular injection into the thighs. In the course of time, secondary changes might develop and vitiate the end

result so this rare childhood disease needs particular attention for early diagnosis and treatment. [1] Here in, we report a 2 year-old girl who presented with inability to bend her knees completely. After the clinical and radiological assessment she was diagnosed a case of bilateral congenital quadriceps contracture. We have reported this case because it is extremely rare to see such a case in daily practice.

CASE REPORT

A young couple brought two years old girl in our out patients orthopaedic department as a referred case from paediatrics. The complaint given was that child does not walk in a normal pattern. She had been born in full term by normal

delivery and her subsequent development was normal. There was no history of local injections or trauma to thigh. Family and immunization history was normal.

On inspection gait of the child- she was able to walk independently but with slow steps. On observation of standing from a sitting position it was found that she first takes a turn over her hands on the floor and then rise up. There was no obvious deformity of genu valgum/varus/recurvatum and also no muscular wasting. On palpation the patella on both sides were equal in size and normal. No extension lag of knee joints was detected. Muscle power on both sides was normal. There was no vascular or neurological deficit or any other congenital abnormality.



Figure -1: Range of movement of right knee joint in supine position.



Figure- 2: Range of movements of both knee joints in prone position.

Physical examination revealed that in supine position (Figure 1), with hip in flexion, the range of movement of knee joints-right (0-70) left (0-90). In prone position (Figure 2), with hips in extension, the range of movements of knee joints was-right (0-45),

left (0-80). X-ray pelvis with both hip joints AP view (Figure-3) was normal. X-rays of both knee joints AP view with complete legs (Figure-4) was normal. X-ray of both knee joints lateral view was also normal (Figure-5).



Figure-3: X-ray of Pelvis with both hip joints (AP view).



Figure-4: AP view of both knee joints.



Figure-5: Lateral views of right and left knee joints.

DISCUSSION

Hnevkovsky [2] was the first person to describe this condition as a muscular dysplasia of congenital origin of the vastus and rectus femoris muscles. In his study there were concurrent other congenital anomalies in three cases along with. Our case had no associated other congenital anomaly.

Gunn suggested that an important factor in the etiology is the administration of intramuscular injections into the thighs. In his study of 22 cases with shortening of quadriceps, 15 had a history of severe illness for which injection therapy was certainly used. [3] Subsequently quadriceps contracture

as a complication of multiple intramuscular injections has been reported by other authors like Euliano J. and McCloskey JR et al. [4, 5] in our case this possibility was ruled out because of no such history.

Varghese et al [6] have reported a case of 4-year-old boy with bilateral congenital aplasia of the patella and agenesis of the distal third of the quadriceps muscle who was unable to walk owing to the lack of active knee extension. Congenital absence of the patella and aplasia of the muscles are very rare anomalies. This possibility in our case was ruled out by careful clinicoradiological examination and

development of patella was labeled as normal.

Aydemir G et al [7] have reported a case of 4-year-old girl who came with pain and swelling at distal anterolateral part of thigh after an attempt of jumping on sofa. In the background she had taken multiple daily injections of Clindamycin. She was diagnosed as a case of partial rupture of quadriceps muscle after an MRI. Traumatic pathologies definitely can produce such scenarios for example adhesions of quadriceps following fracture shaft of femur. In our case there was no history of any trauma.

Williams PF [8] has gone in length to discuss on quadriceps contracture. In the article published by him in JBJS he states that on etiological basis we can place these cases to the contractures seen in sternomastoid torticollis or in club foot, or a form of localized arthrogryposis. According to him mode of presentation at birth in these cases can be 1) a stiff knee (like our case). 2) Congenital recurvatum. 3) Congenital dislocation (we ruled these out clinically).

Ad Hoc Committee on musculature contracture formed by the Japanese Orthopaedic Association [9] has classified quadriceps contracture into three types as the rectus femoris, vastus and mixed type. Our patient belonged to mixed type, because of vastus type of symptom as restricted flexion of the knee joint with hip flexion and also the rectus femoris type symptom of restricted knee flexion in the prone position.

CONCLUSION

This rare childhood disease should be kept in mind so that early diagnosis and treatment might prevent further complications.

REFERENCES

1. Ozdemir O, Atalay A, Celiker R, Kerimoğlu U, Ozdemir O. Congenital contracture of the quadriceps muscle: confirming the diagnosis with magnetic resonance imaging. *Joint Bone Spine* 2006; 73(5):554-6.
2. Hnevkovsky O. Progressive fibrosis of the vastus intermedius muscle in children. *J Bone Joint Surg Br* 1961; 43:318-25.
3. Gunn DR. Contracture of the quadriceps muscle. A discussion on the etiology and relationship to recurrent dislocation of the patella. *Journal of Bone Joint Surgery Br* 1964; 46:498-502.
4. Euliano J. Fibrosis of the quadriceps mechanism in children. *Clin Orthop Relat Res* 1970; 70:181-6.
5. McCloskey JR, Chung SMK. Quadriceps contracture as a result of multiple intramuscular injections. *Am J Dis Child* 1977; 131:416-7.
6. Varghese RA, Joseph B. Congenital aplasia of the patella and the distal third of the quadriceps mechanism. *J Pediatr Orthop B*. 2007 Sep; 16(5):323-6.
7. Aydemir G, Cakmak S, Aydin S. Partial rupture of the quadriceps muscle in a child. *BMC Musculoskeletal Disorders* 2010; 11:214. Doi:10.1186/1471-2474/11/214.
8. Williams PF, Quadriceps Contracture. *The Journal of Bone and Joint Surgery* 1968; 50(2):278-84.
9. Sano S, Kakubun S. Report of the diagnosis and treatment of muscular contracture-the Ad Hoc Committee of the Japanese Orthopaedic Association of Muscular Contracture. *J Jpn Orthop Ass* 1985; 59:223-53.

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