

Unilateral neglected congenital quadriceps contracture in a 8 year old childMohd Shafi Bhat¹, Navdeep Gupta², Dev Reshi Kumar Pandey³, Mohmad Yaseen Rather⁴.**ABSTRACT**

Congenital contracture of the quadriceps muscle is a progressive loss of knee flexion due to fibrosis within the muscle without a history of trauma or intramuscular injection into the thighs. We report a case of unilateral congenital quadriceps contracture in a 8-year old girl who was operated for the same. V-Y lengthening of the quadriceps was done using a midline incision. Post-operatively patient developed skin necrosis at the incision site which was managed with split-skin grafting. Two year follow-up revealed a painless mobile knee with ROM of 0 to 100 degrees.

Keywords: Congenital quadriceps contracture, quadriceps lengthening, V-Y plasty of quadriceps.

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INTRODUCTION

Congenital quadriceps contracture is a relatively rare condition. Hnevkovsky in 1961 reported it as a progressive fibrosis of the vastus intermedius¹. Gunn in 1964 suggested that an important factor in the etiology of contracture is the giving of intramuscular injections into the thighs². Congenital quadriceps contracture may present with 1) a stiff extended knee;

2) congenital recurvatum; or 3) congenital dislocation³.

We herein present a case of unilateral quadriceps contracture with extended knee of congenital origin in a 8 year old child which was unique in the sense that no treatment was offered for 8 years and the patient almost had no flexion possible at the affected knee.

CASE REPORT

A 8 year old female child was brought to our out-patient department with the complaint that she is not able to bend her right knee since her birth. She was the only child of her parents. She was born of a full-term normal vaginal delivery and had normal developmental milestones.

There was no history of receiving any intramuscular injections into the thighs. General physical examination was within normal limits. She had no other congenital anomaly. Spine examination was normal.

Local examination revealed that her right knee was extended with only a jog of movement possible. (Figure 1).



Figure 1 showing extended knee before surgery.

Motor power, sensations and reflexes were normal in all the four limbs. X rays of the involved knee were done which revealed flattening of the femoral condyles. (Figure 2)



Figure 2 showing flattened femoral condyles .

Patient was operated upon under general anaesthesia via a midline thigh incision from superior pole of patella to 20 cm above. Quadriceps was exposed and V-Y lengthening of the contracted tendons done as described by Williams³ (Figure 3).



Figure 3: showing V-Y quadricepsplasty operative picture of the case.

Contracture of the rectus femoris, vastus lateralis and vastus intermedius was found. ROM of 100° was achieved during the surgery. The knee was immobilized in 90° of flexion using a plaster slab for 3 weeks after which quadriceps strengthening exercises were started. Breakdown of skin at the incision site in the suprapatellar area occurred which was managed with split skin grafting of the defect 6 weeks after the lengthening procedure.

At the latest follow-up of 2 years patient had a near normal gait with flexion

of 100° in the affected knee with 4/5 power of quadriceps.

DISCUSSION

Congenital quadriceps contracture has been described as a muscular dysplasia of congenital origin by Hnevkovsky¹. Shong Show Chiu et al (1974) reported four cases of congenital quadriceps contracture in identical twins of which three were operated⁴. Case 1 was reported to have no scarring of the skin or atrophy of the thighs with no evidence of dislocation or high position of the patella. Patient was operated and tenotomy of the rectus femoris was done. Case 2 was not

operated. Cases 3 and 4 reported at the age of 21 years and were operated. Fairbank and Barret reported identical twins with similar findings, suggesting a genetic basis to explain the etiology of this condition⁵. Gunn described the pattern of contracture with most cases having the contracture of vastus lateralis and vastus intermedius (9 out of 22) with 3 cases having contracture of vastus lateralis, vastus intermedius and rectus femoris.²

Surgical treatment of quadriceps contracture has included simple division of the fibrosed part⁶, proximal release of the quadriceps muscle⁷ and lengthening of the quadriceps³. Open lengthening of the quadriceps was done in our case.

Adhoc committee on musculature contracture of Japanese Orthopaedic Association has classified quadriceps contracture into three types as the rectus femoris, vastus and mixed type⁸. Our case belonged to the mixed type as contracture of both vasti and rectus femoris was found during surgery. Our case was unique in the sense that the patient was neglected for 8 years and no treatment was offered for the same. Patient was managing her day to day activities but complained of difficulty in

sitting, squatting ,using public transport etc. No flexion was possible at the affected knee with the joint locked in extension.

The most common complication of open quadriceps lengthening via a midline incision reported is the skin breakdown of the incision⁹. We also encountered the problem and managed the same with split skin grafting.

CONCLUSION

Surgical treatment of quadriceps fibrosis/contracture by soft tissue release and tendon lengthening is effective in management of this problem. The most common complication is skin breakdown.

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