

## Chondromalacia Patellae

\*Simhavalli.Godavarthi, \*Gollapalli.Eswari, \*Kuramana.Sneha,  
\*Meghana.Udandarao, \*Jnaapika.Malla, \*Imandi Venkata Surekha  
\*Avanthi institute of pharmaceutical sciences, Tagarapuvalasa, Vijayanagaram, Andhra Pradesh  
Corresponding author: Simhavalli.Godavarthi

Date of Submission: 25-12-2020

Date of Acceptance: 10-01-2021

**ABSTRACT:** Chondromalacia patellae (CMP) is due to patellofemoral pain. It is a frequent and often challenging clinical problem. Females are more affected when compared to males and includes many different pathologic entities that result in pain in the anterior aspect of the knee. Diagnosis of the distinct cause of pain is difficult and requires assessment of lower extremity strength, alignment and tracking and mobility. The treatment for CMP is usually activity modification and a specific physical therapy program focussing on strengthening and flexibility. rarely surgical treatment may be done after a non-operative program fails. The result of surgical management may include debridement, lateral release and realignment of the extensor mechanism to unload the patellofemoral articulation are favourable.

**KEYWORDS:** Chondromalacia, Patellofemoral, Debridement, Articulation, Anterior.

### I. INTRODUCTION

- Chondromalacia patellae is a condition that affects adolescents and young adults who present with a dominant symptom of anterior knee pain due to 'softening' of patellar articular cartilage.
- The basic disorder is probably due to respective mechanical overload of patellofemoral joint.
- Often teenage girls or an athletic young adult are affected.
- This maybe caused even due to vitamin D and calcium deficiency.
- Symptoms are aggravated by more of knee activity or climbing stairs or when standing up after sitting for long period.
- This can be diagnosed by showing and measuring patellofemoral malposition by computed tomography (CT) or MRI, with the knees in full extension and varying degrees of flexion.

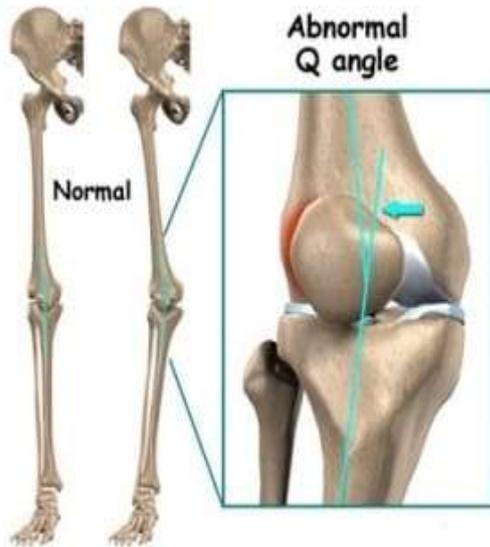
### PATHOLOGY



The normal appearance of healthy hyaline cartilage of the deep surface of the patella is bluish-white, smooth, glistening and resistant. The prior change in chondromalacia is that the cartilage becomes dull or even slightly yellowish-white and is soft swollen. As the condition progresses, irregular deep fissures develop and the affected area becomes a mass of villous-like cartilaginous flakes attached to subchondral bone. This area gradually increases in size while at its centre of the cartilage is eroded down to bare bone. Gradually the changes extend to the lateral facet, usually crossing the waist of the bone until the whole patella is affected. The changes of chondromalacia of the patella are classified into four grades

**Grade 1:** softening and swelling of the patella.  
**Grade 2:** fragmentation and fissuring in the region half an inch or less in diameter.  
**Grade 3:** it is same as grade 2 but an area more than half an inch in diameter is involved.  
**Grade 4:** erosion of cartilage down to bone.

There is no relationship between the time or severity of the injury causing the tear of meniscus and chondromalacia of patella.



## MANAGEMENT

- Maximum this is adjusted by avoiding stressful activities.
- Exercises are directed specifically for strengthening the medial quadriceps so as to counter balance the tendency to lateral tilting of the patella.
- Generally, cholecalciferol (vitamin D3) is prescribed to improve bone strength.
- If symptoms persist lateral retinacular release surgery is done to repair (or) strengthen the medial patellofemoral ligaments and to re-align the extensor mechanism so as to produce mechanically more favourable angle of pull.

## REHABILITATION

### Grade 1

Goals:

- Control pain and inflammation.
- Begin pain free flexibility exercises
- Establish quadriceps activation
- Establish pain free knee ROM

Exercises:

- Cycle with minimal resistance (if pain free)
- Heel slides (if pain free)
- Lowering extremity stretching
- Quad sets

### Grade 2

Goals:

- Continued protection of injured joint.
- Continue to improve flexibility.
- Set about to strengthen areas of weakness / instability.

Exercises:

- Cycle (slow progression of resistance)
- Knee extension
- Straight leg rise
- Hip abduction
- Hip extensors
- Hip external rotators
- Hamstring curls

### Grad 3

Goals:

- Continue to avoid exacerbation of symptoms
- Continue to amplify return of strength and flexibility
- Establish close chain strength and stability

Exercise:

- Continue cycle with progressive resistance
- Lower extremity stretching
- Elliptical (if pain free)
- Swimming
- Squats to 90 degrees
- Pain free closed chain hip strengthening

### Grade 4

Goals:

- Continue to avoid patella femoral overloads
- Progress with single leg strengthening
- Achieve sufficient strength and flexibility to return to activity

Exercise:

- Daily stretching
- Cycle
- Elliptical
- Swimming
- Running
- Step-ups
- Single-leg strengthening

## II. CONCLUSION

Chondromalacia patellae is a knee disorder which is caused due to overload of patellofemoral joint which mostly affects adolescents and young adults (mostly women). Its main symptom is knee pain on knee movement for this disorder mostly vitamin D and physical exercise are recommended. Surgery is preferred only in severe case.

## ACKNOWLEDGMENT

We successfully completed this article under the guidance of Neelima Neelapu professor at Avanathi institute of pharmaceutical sciences at tagarapuvalasa, vijayanagaram.

### BIBLIOGRAPHY

- [1]. Fourth edition of apley and Solomon's concise system of orthopaedics and trauma by louis Solomon, David warwick and selvadurai nayagam – pg: 283,284.
- [2]. The journal of bone and joint surgery – the ethology of chondromalacia patellae; R.E outer bridge, new Westminster, British Columbia, Canada; vol.43 B, No.4, 1961
- [3]. Patellofemoral / chondromalacia protocol in south shore hospital orthopaedic, spine and sports therapy in clinical collaboration with south shore orthopaedics.
- [4]. The management of chondromalacia patellae: A long term solution by jenny McConnell at MTAA IVth National conference held in Brisbane; 1985
- [5]. A novel biological approach to treat chondromalacia patellae by Jaewoo Pak, Jung Hun lee, sang hee lee; PLOS ONE volume 8, issue 5, 2013.
- [6]. The associations of vitamin D deficiency with knee pain and biomechanical abnormalities in young Iranian patients with patellofemoral pain syndrome: A case-control study by Fariba Eslamian, Fatemeh jahanjoo and Banafshe Kharrazi; Iran Red Crescent Med J.2018
- [7]. Patella-femoral joint mechanics and pathology by john good fellow, D.S. Hungerford and Colin woods from the nuffield orthopaedic centre, oxford, England; vol. 58-B, 1976
- [8]. Master techniques in orthopaedic surgery, knee arthroplasty by Paul A. lotke, JessH.lonner; third edition 2009, pg: 19-25
- [9]. Patellofemoral pain: an update on diagnostic and treatment options by moira M, McCarthy and Sabrina M. Strickland.