The patellofemoral syndrome; the same problem as the Loch Ness Monster?

Receiving a referral letter to see a patient with patellofemoral syndrome causes a feeling of heart-sink in most orthopaedic surgeons. It predicts an unhappy patient, a prolonged clinic appointment, and an unsatisfactory outcome. Especially as a reliable operation is an unlikely management outcome. Orthopaedic surgeons tend to be mechanically minded and see their main task as correcting abnormalities surgically. Patellofemoral syndrome is the antithesis of this. As Teitge said “patellofemoral syndrome: What does it mean? Historically a wastebasket term for pain and dysfunction … patellofemoral syndrome is not a diagnosis but rather an admission of ignorance” [1].

A medical syndrome is a specific collection of signs, symptoms, laboratory results, and/or imaging findings that occur together often enough, so that the presence of one feature indicates the presence of the others. The causes of a syndrome can be investigated, as can its management and even its cure (consider hypermobility or complex regional pain syndromes). The term “patellofemoral syndrome” is widely used in the orthopaedic literature with many studies analysing patients labelled with this diagnosis. There are many other terms used to pigeonhole these patients including patellofemoral pain syndrome and chondromalacia patellae [2]. The American Academy of Family Physician has stated that: “Patellofemoral pain syndrome can be defined as retropatellar or peripatellar pain resulting from physical and biochemical changes in the patellofemoral joint. It should be distinguished from chondromalacia, which is actual fraying and damage to the underlying patellar cartilage. Patients with patellofemoral pain syndrome have anterior knee pain that typically occurs with activity and often worsens when they are descending steps or hills. It can also be triggered by prolonged sitting. One or both knees can be affected. Consensus is lacking regarding the cause and treatment of the syndrome.” [3]. But is patellofemoral syndrome really a syndrome? A quick literature search of the term “patellofemoral syndrome” produced 17 recent papers reporting on patients with this problem [4–20]. With respect to the definition of the American Academy of Family Physicians all these papers included anterior knee pain, 11 included activities such as sports, walking or running, 13 included either descending stairs or hills (but none included both), and 14 included prolonged sitting. However 14 also included pain on squatting and kneeling. Furthermore 15 specifically excluded previous trauma. Four of the studies did not appear to fit the American Academy definition [4,10,17,18].

The Loch Ness Monster is a snake-like creature that is said to live in Loch Ness, a large lake in Scotland. Speculation about its existence has gone on for many years, much has been written about it, but it is almost certainly a myth. It is, however, fertile ground for argument and entertainment e.g. is it a surviving plesiosaur? Anterior knee pain is multi-factorial, and the cause of the pain can vary from patient to patient. Over the years, orthopaedic surgeons and physiotherapists have uncovered a number of symptoms, physical examination findings, and radiographic (imaging) signs that are felt to contribute significantly to the genesis of anterior knee pain. These include, patellar tilt/tight lateral retinaculum, plicae, neuromata, abnormal hip and femoral mechanics, core weakness and pes planus, to name but a few. Yet the published studies reflect widely differing cohorts. None of the investigators in the referenced studies, for example, looked into whether any of their subjects had a tight iliotibial band. Nor did the investigators look into core stability problems. Many do not appear to have looked at patellar tilt. Thus generalisations concerning patients suffering from “patellofemoral syndrome” do not seem justified at this point. The term “patellofemoral syndrome” merely parrots back to the patient in medical terms what the patient complained of in the first place in layman’s terms [2].

Based on our literature review it would appear that a patient with patellofemoral syndrome is a person with anterior knee pain that is aggravated by squatting and prolonged sitting. Exclusion criteria are ACL/PCL/collateral ligament insufficiency, meniscal tears, prior knee trauma and prior knee surgery. This, of course, leaves the door open to the many conditions that are known or strongly felt to cause, aggravate, or otherwise contribute to anterior knee pain. It is conceivable that all patellofemoral syndrome patients, regardless of their specific diagnosis, share a common trait—a sign on the physical examination, perhaps an EMG finding, a laboratory value etc. This common trait would provide us with the key to the patellofemoral kingdom, and its presence would define the patellofemoral syndrome. Such a finding has yet to be found, though may an investigator has claimed to have done so. Large numbers of patients would be required to average out all the known and suspected causes of anterior knee pain. Alas, 43 is the mean number of subjects studied in the 17 papers cited, and, as we have seen, authors by and large provide us with insufficient information concerning their subjects. Investigators need to either greatly expand their inclusion and exclusion criteria or the number of subjects in their studies. Analyses of small groups of ill-defined patients add little useful information to our body of knowledge. For now, the patellofemoral syndrome remains the Loch Ness monster of the knee. Some investigators are confident that they will eventually uncover a specific finding that will justify the use of the term “syndrome.” That day has not arrived, nor is it likely to, considering the wide array of disparate conditions that can cause anterior knee pain.

The patellofemoral syndrome does not exist, and studies that have purported to investigate it are as tantalising, but ultimately as fruitless as the shadowy pictures of the monster in Loch Ness. We would suggest that the term “anterior knee pain” describes the problem without implying a diagnosis or a physical condition, and is the only symptom that we can all actually agree on.
References


Ronald Grelsamer* Garrett Moss
Mount Sinai Medical Center Box 1188 5 East 98th Street New York NY 10029, USA
Corresponding author.
E-mail address: Rgrelsamer@aol.com (R. Grelsamer).

Gerard Ee
St. George’s Hospital Blackshaw Rd London, SW17 0QT UK
Simon Donell
Norfolk and Norwich University Hospital Colney Lane Norwich NR4 7UY UK