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EDITORIAL

Distinguishing erosive osteoarthritis and calcium pyrophosphate deposition disease

Bruce M Rothschild

Bruce M Rothschild, Department of Medicine, Northeastern Ohio Medical University, Rootstown, OH 44272, United States
Bruce M Rothschild, Biodiversity Institute, University of Kansas Museum of Natural History, Lawrence, KS 66045, United States
Author contributions: Rothschild BM solely contributed to this paper.
Correspondence to: Bruce M Rothschild, MD, FACR, Professor of Medicine, Biodiversity Institute, University of Kansas, 3901 Rainbow Blvd, Lawrence, KS 66006, United States. bmr@ku.edu
Telephone: +1-785-6151523 Fax: +1-785-5942691
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Abstract

Erosive osteoarthritis is a term utilized to describe a specific inflammatory condition of the interphalangeal and first carpal metacarpal joints of the hands. The term has become a part of medical philosophical semantics and paradigms, but the issue is actually more complicated. Even the term osteoarthritis (non-erosive) has been controversial, with some suggesting osteoarthrosis to be more appropriate in view of the perspective that it is a non-inflammatory process undeserving of the "itis" suffix. The term "erosion" has also been a source of confusion in osteoarthritis, as it has been used to describe cartilage, not bone lesions. Inflammation in individuals with osteoarthritis actually appears to be related to complicating phenomena, such as calcium pyrophosphate and hydroxyapatite crystal deposition producing arthritis. Erosive osteoarthritis is the contentious term. It is used to describe a specific form of joint damage to specific joints. The damage has been termed erosions and the distribution of the damage is to the interphalangeal joints of the hand and first carpal metacarpal joint. Inflammation is recognized by joint redness and warmth, while X-rays reveal alteration of the articular surfaces, producing a smudged appearance. This ill-defined, joint damage has a crumbling appearance and is quite distinct from the sharply defined erosions of rheumatoid arthritis and spondyloarthropathy. The appearance is identical to those found with calcium pyrophosphate deposition disease, both in character and their unique responsiveness to hydroxychloroquine treatment. Low doses of the latter often resolve symptoms within weeks, in contrast to higher doses and the months required for response in other forms of inflammatory arthritis. Reconsidering erosive osteoarthritis as a form of calcium pyrophosphate deposition disease guides physicians to more effective therapeutic intervention.

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Key words: Erosive osteoarthritis; Calcium pyrophosphate deposition disease; Rheumatoid arthritis; Spondyloarthropathy; Osteoarthritis; Hydroxychloroquine

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SEMANTICS

Semantics, philosophy and paradigms are at the core of how we name a disorder[1-11]. Thus, the term erosive osteoarthritis has been imbedded in the medical lexicon. The issue is complex. Even the term for the non-erosive phenomenon we recognize as osteoarthritis[7,8,10,12-26] is somewhat of a misnomer. Semantically, the suffix "itis" in osteoarthritis would suggest inflammation of a diarthrodial (synovial membrane-lined) joint. As osteoarthritis is associated with negligible inflammation[27,28], the suggestion has been made that osteoarthrosis is a more proper term[29]. Further, the term "erosions" has occasionally utilized in an imprecise manner to describe cartilage damage in osteoarthritis[27,28,30]. Actual erosions/disruption of subchondral bone does not occur.

INFLAMMATION

Inflammation of joints affected by osteoarthritis appears actually to be related to complications[31-35] and not to the primary disease. The most common complications are related to calcium pyrophosphate and hydroxyapatite crystals.

Erosive joint disease

The term "erosive osteoarthritis" has been utilized to describe a process which involves joints (interphalangeal and first carpal metacarpal) commonly affected by osteoarthritis, but is characterized by subchondral joint damage[36-38]. Joint tenderness, swelling, angulation, redness and warmth are often present, the latter two documenting an inflammatory process. Radiologic evaluation reveals abnormal articular surfaces, referred to as erosions. These erosions differ from what is found in the major forms of erosive arthritis, rheumatoid arthritis and spondyloarthropathy[3,39-42]. The term spondyloarthropathy defines a family of erosive arthritis including ankylosing spondylitis, psoriatic arthritis, reactive arthritis (replacing name of the war criminal, Reiter's syndrome), the arthritis of inflammatory bowel disease (ulcerative colitis and Crohn's disease) and an undifferentiated form). In contrast to the sharply delineated erosions of the latter, the term "crumbling" has been used to describe the joint damage characteristic of erosive osteoarthritis. The edges appear ill-defined or smudged[3,39,42]. There may be adjacent calcific flecks. This pattern actually describes the damage found in calcium pyrophosphate deposition disease[3,27,39,42].

Calcium pyrophosphate deposition disease

Not only is the character of osseous damage in erosive arthritis identical to that seen in other joints affected by calcium pyrophosphate deposition disease[3,39,43,44], the character of its response to therapeutic intervention is identical[43,44]. Hydroxychloroquine (Plaquenil) treatment, which has not effect on osteoarthritis, is extraordinarily effective in treatment of erosive osteoarthritis. Lower doses are required and the response rate is significantly more rapid in individuals with erosive osteoarthritis (now interpreted as a manifestation of calcium pyrophosphate deposition disease) than rheumatoid arthritis or spondyloarthropathy. Doses as low as 100 mg and control of inflammation within one to four weeks are not uncommon, in contrast to the three to six months required for recognizable response in patients with rheumatoid arthritis or spondyloarthropathy[44-46]. I suggest that the term "erosive osteoarthritis" has outlived its usefulness. Recognizing the characteristic damage as a manifestation of calcium pyrophosphate deposition disease directs attention to specific evidence-based interventions[39,44,47-59].

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