

ARTHRITIS PATHOLOGY

Edward F. DiCarlo, MD^{a,b}, Michael J. Klein, MD^{a,b,c,*}

KEYWORDS

- Degenerative joint disease • Osteoarthritis • Subchondral insufficiency fracture
- Inflammatory disease • Avascular necrosis • Septic/infectious arthritis • Joint replacement
- Gout • Iron overload • Ochronosis

ABSTRACT

The pathologic examination of failed joints, whether natural or artificial, is an indispensable part of the understanding of arthritis, as it is the last, and still best opportunity to determine or verify the correct diagnosis. Accuracy in pathologic diagnosis, based on a firm understanding of the various disease processes, provides reliable data for use in clinical registries, provides an opportunity to explain the “unusual” clinical presentation, and ultimately gives the “best evidence” for basing further treatments and prognosis for the individual patient.

OVERVIEW: BASIC CONCEPT OF ARTHRITIS

The 2 most common types of joint affected by arthritis of any kind are either diarthrodial (synovial) or amphiarthrodial (intervertebral discs). Most of the conditions affecting these joints are centered on diarthrodial joints, which is the focus of this article.

A functioning diarthrodial joint depends on the normal function of all of its components; an abnormality centered in one component eventually affects the others. The components of a diarthrodial joint are the articular cartilage; bones; menisci, if present; ligaments, tendons, capsular tissues; and neuromuscular elements. Some form of arthropathy develops when inflammation, degeneration, deformation, or abnormal deposits affect any of these components. In practice, the term “arthritis” is usually considered synonymous with

“arthropathy,” because most cases of disease in fact have either a primary or secondary inflammatory component. This in turn reduces the uncertainty about when to use such terms as “arthritis” and the somewhat awkward terms “arthrosis” and “arthritides.”

DISEASE CLASSIFICATION

The classification of arthritic diseases is based on the putative site of initiation or concentration of the disease process. Disease arising from degenerative changes, such as osteoarthritis, affects the cartilage initially. Inflammatory diseases, such as rheumatoid arthritis, the seronegative spondyloarthropathies, and infection begin in the synovium or bone. Diseases characterized by acute or chronic deformity of the joint, which is maintained primarily by the bone, include trauma, the dysplasias, collapse, and Paget disease. Depositional diseases such as gout and ochronosis result when deposits of crystals or aberrant chemical components accumulate in the soft tissues and bones of the joint, respectively.

In this classification scheme, most conditions are arbitrarily considered primary – arbitrary, in that many cases of osteoarthritis, for example, lack an identifiable specific inciting or precipitating event. Likewise, the inflammatory diseases such as rheumatoid arthritis and ankylosing spondylitis are considered primary because they have early joint involvement. On the other hand, so-called secondary inflammatory joint disease may occur much later in cases of the seronegative

^a Department of Pathology and Laboratory Medicine, Hospital for Special Surgery, 535 East 70th Street, New York, NY 10021, USA

^b Joan and Sanford Weill College of Medicine of Cornell University, 1300 York Avenue, New York, NY 10065, USA

^c Memorial Sloan-Kettering Cancer Center and Memorial Hospital for Cancer and Allied Diseases, 1275 York Avenue, New York, NY 10065, USA

* Corresponding author. Department of Pathology and Laboratory Medicine, Hospital for Special Surgery, 535 East 70th Street, New York, NY 10021.

E-mail address: KleinM@HSS.EDU

Table 1
Diagnosis distribution of large joints, 1997 versus 2007

	Hip				Knee				Shoulder			
	1997		2007		1997		2007		1997		2007	
	No	%	No	%	No	%	No	%	No	%	No	%
Diagnoses:												
DJD	491	83	597	75	569	93	898	93	29	67	33	69
AVN	62	10	43	5	13	2	1	0	5	12	4	8
Neck Fx.	22	4	21	3	0	0	0	0	5	12	8	17
Inflamm.	11	2	14	2	32	5	17	2	4	9	2	4
Subchon. Fx.	2	0.3	90	11	0	0	51	5	0	0	1	2
Rapid	2	0.3	25	3	0	0	2	0.2	0	0	0	0
Septic	1	0.2	2	0.3	0	0	1	0.1	0	0	0	0
Total Count:	591		792		614		970		43		48	

Abbreviations: AVN, avascular necrosis; DJD, degenerative joint disease; Fx, fracture; Inflamm, inflammation; Subchon, subchondral.

spondyloarthropathies and arthropathies associated with other diseases, such as inflammatory bowel disease and reactive arthritis (Reiter syndrome).

Although the pathologic classification of the various joint diseases has remained fairly constant, several conditions have been added to the list of distinct entities over the past decade. The conditions that are presented in this article and their relative frequencies as they were encountered by the authors from 1997 to 2007 are listed in **Table 1**. These years were chosen because they span a period from before the reporting of more recently appreciated conditions to well into the first decade of this millennium—a period designated as the “The Bone and Joint Decade

for the Prevention and Treatment of Musculoskeletal Disorders.”¹ The condition-specific experience by the authors is presented in **Table 2**, with summary information covering 2005 through 2009, a period when all of the conditions listed in **Table 1** were included in the diagnostic acumen of the authors.

DISEASE FEATURES

DEGENERATIVE JOINT DISEASE

Degenerative joint disease (DJD) or osteoarthritis (OA) is the most common form of arthritis encountered in clinical and pathologic practice (see **Table 1**). The causes of this form of arthritis are

Table 2
Anatomic distribution by diagnosis, 2005 through 2009

Joint	Osteoarthritis		Subchondral Fracture		Rapidly Destructive		Inflammatory Disease		Avascular Necrosis		Septic Arthritis		Implant Failure	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Hip	3109	36.7	502	57.0	118	95.2	59	29.8	210	90.1	9	17.0	502	52.2
Knee	4426	52.2	360	40.9	6	4.8	71	35.9	4	1.7	30	56.6	411	42.8
Shoulder	280	3.3	12	1.4	0	0.0	13	6.6	16	6.9	6	11.3	31	3.2
Elbow	39	0.5	2	0.2	0	0.0	11	5.6	1	0.4	1	1.9	10	1.0
Ankle	49	0.6	4	0.5	0	0.0	3	1.5	1	0.4	2	3.8	5	0.5
Small, Upper	143	1.7	0	0.0	0	0.0	22	11.1	1	0.4	1	1.9	0	0.0
Small, Lower	429	5.1	1	0.1	0	0.0	19	9.6	0	0.4	4	7.5	2	0.2
	8475	—	881	—	124	—	198	—	233	—	53	—	961	—

Download English Version:

<https://daneshyari.com/en/article/3334647>

Download Persian Version:

<https://daneshyari.com/article/3334647>

[Daneshyari.com](https://daneshyari.com)