Aberrant  feature/condition different from usual or normal.
Abscess    cavity containing localized pus collection.
Acheiria = acheiropodia = apodia  absent paw.
Acheiropodia = apodia = acheiria.
Achondroplasia  abnormal cartilage conversion to bone, producing short, abnormally limbed dwarfism.
Acromegaly  disproportionate increase in bone size related to overproduction of growth hormone.
ACTH  adrenocorticotropic hormone.
Adenoma  benign neoplasm of glandular cells.
Adrenocorticotropic hormone  Anterior pituitary hormone that stimulates the adrenal cortex.
Agenesis  failure of formation of all or part of structure.
Adactyly  absence of digits.
Amely  congenital absence of limb(s).
Amyloidosis  disease associated with tissue deposition of abnormal protein or abnormal immunoglobulin.
Anacatadidymus  two heads and two tails (Fischer 1868).
Anadidymus  a two-tailed (Fischer 1868).
Anakatamesodidymus  separated at the anterior and posterior ends and also in the middle of the trunk (joined only along body).
Ankylodactyly  fused digit.
Ankylose  growing together.
Ankylosis  Rigid union.
Anulus fibrosus  often misspelled term for the outer layers of intervertebral disks.
Anurans  frogs and toads.
Aphalangia  absence of some phalanges or finger bones.
Aplasia  congenital absence, total failure of development of specific element.
Apodia = acheiropodia = acheiria.
Arthrogyphosis  flexed positioning due to muscle fibrosis.
Atldyamus  complete cranial duplication, with a single enlarged or duplicated atlas vertebra.
Batrachian  amphibian.
Bends  nitrogen bubble-induced complication of decompression syndrome (caisson disease).
Bicephalic = dicephalic  having two heads.
Bipartite ossification  unfused ossification centers as opposed to bipartite bones.
Bone bridge  spans space between two margins of bent bone. Linear rays of bone extending filling margins between bone margins.
Brachydactyly  abnormally short fingers or toes.
Brachymely = micromelia = acromelia = nanomely  shorter limb.
Brachygnathia  mandibular micrognathia; abnormal shortness of mandible.
Brachyuria  short tail.
Caecilians  third order of Lissamphibia.
Calcium pyrophosphate deposition disease  crystals of calcium pyrophosphate dihydrate accumulate in the hyaline articular cartilage or fibrocartilage (pseudogout).
Callus  reactive bone which forms a splint during fracture healing.
Carcinoma  malignant neoplasm derived from epithelial cells. Tissue of origin can be skin, lungs, stomach, breast, cervix, and prostate.
Catadidymus  two-headed (Fischer 1868).
Caudata  salamanders and newts (= urodeles).
Cebodocephaly  reduced distance between orbital cavities.
Cephaloderopagus  fusion by cranium and cervical vertebrae.
Cephalomegaly  additional extremity(ies) in the head.
Cheigagra  gout affecting the hand.
Cheilognathopalatoschisis = cheilognathouranoschisis  cleft lip, jaw, and palate.
Cheilognathoschisis  split (cleft) anterior jaw.
Cheilognathouranoschisis = Cheilognathopalatoschisis.
Chiloschisis  hairlip.
Chirodactyly  finger curvature.
Chondrodysplasia  = chondrodystrophy  abnormal cartilage development in long bones, especially at epiphyseal plates, resulting in short-limbed individuals with normal axial skeleton.
Chondrodystrophy  = Chondrodysplasia.
Chondrogenesis  cartilage formation.
Chondroid  cartilage.
Chondromyxoma  benign mesenchymal cell tumor additionally containing cartilage differentiated/recongnizable cells.
Chondro-osteofibroma  benign fibrous neoplasm containing chondroid and osseous elements.
Chondrosarcoma  malignant cartilage neoplasm.
Chordoma  notochord-derived neoplasm.
Clinodactyly  curvature of one or more digits.
Cortical bone  component of bone between periosteum and medullary region.
Corticosteroid  adrenal hormones of variable forms, with corticosterone dominant in amphibians and reptiles, contrasted with cortisol in metamorphic ranid tadpoles, Xenopus laevis, and some urodeles, which are the major endocrine portion of the stress response.
Craniophagus  fusion by cranium.
Craniosynostosis  premature cranial suture closure.
Dactylomegaly  long digit (= macrodactyly).
Derodidymus  vertebral column bifurcated in the cervical region, double-headed (two complete heads and necks).
Deropodymus  incomplete cranial duplication and complete vertebro-cervical duplication.
Diagnosis  formal character state description distinguishing one taxon from another (herpetology definition), contrasted with use in this annotated bibliography as identified disease state.
Diarthrodial  synovial-lined joint, at which motion occurs.
Dicephalic = bicephalic  having two heads.
Dichocephalic  two-headed ribs.
Dipygus  caudal duplication below leg.
Dolichocephaly = macrocephaly  large or long head.
Dorsoventral vertebral column curvatures  commonly attributed to metabolic bone disease; usually refers to thoracic spine (hump-like arching of tortoise carapace).
Dysplasia  any abnormality of tissue development. Conventionally used for nonmalignant pathology.
Ectodactyly = ectrodactyly  in Rostand absence of one or more digits.
Ectomely  absence of one or more limbs or incomplete limb with missing lower portion; the term encompasses amely, hemimely, and meromely.
Ectromelia = phocomelia.
Enchondroma  benign cartilage neoplasia, typically within bone. Perhaps representing cartilage remnant.
Endosteal  medullary surface of cortical bone.
Enthesis  area of muscle, tendon, or joint capsule attachment.
Erosive  biologic process-derived bone disruption in living tissue.
Ethmocephaly  cyclopi with small eyes and snout.
Etiology  cause of the phenomenon/disease.
Exostosis  surface bone growth (at muscle attachments, referred to as entheses).
Fibrodysplasia replacement of bone tissue by fibrous tissue (= fibrous dysplasia).

Fibroma (ossifying) mass composed of fibrous tissue or connective tissue.

Fibroma (nonossifying) benign fibroblastic mass, also called fibroxanthoma, nonneoplastic lesions from faulty ossification at the growth plate. Allegedly present at some time in a third of all children. May have a bubbly appearance and sclerotic margin and may expand cortex but has no matrix calcification.

Fibrous dysplasia replacement of bone by fibrous tissue.

Fracture bone broken into one or more pieces.

Gangrene death of tissue.

Gastromely additional extremity(ies) between thorax and pelvic.

Giantism - gigantism overgrowth of body in whole or part.

Gonagra - gonatagra gout affecting the knee/stifle.

Gout a metabolic disorder in which sodium urate crystals deposit in joints (referred to as articular gout) or internal organs (referred to as viscous gout).

Greenstick fracture herpetologic use (e.g., Lane et al. 1984) was to describe the “folding fracture” of metabolic bone disease. This contrasts with medical use to describe a form of incomplete fracture in immature bone.

Hamartoma overgrowth of tissue normally located in the area.

Hemimely defective limbs, especially distal components.

Heterotopic transplantation to abnormal location or occurring in many habitats (herpetology definition), contrasted with use in this annotated bibliography to indicate spontaneous occurrence in locations usually lacking the anlage.

Hump deformed kyphotic spine.

Hypermely additional extremities (= melomely).

Hyperparathyroidism disorder caused by overactivity of the named glands, producing osteitis fibrosa cystica and other bone changes.

Hyperphalangy fingers or toes with supernumerary phalanges.

Hyperplasia nonneoplastic increase in cells of any body tissue.

Hypoplasia underdevelopment incomplete development of a tissue or organ.

Hypertrophy nonneoplastic increase in tissue bulk but not number of component cells. Term is often misused since hyperplasia is the more accurate term.

Ileopolymely multiple limbs coming off ilium.

Interstitial extracellular, extravascular tissue space.

Ischiomely extra limb coming off ischium.

Keratoconjunctivitis conjunctival inflammation, which may be a component of the immunologic disorder Sjögren’s syndrome or associated with eye inflammation in reactive arthritis.

Kypholordosis combination of kyphosis and lordosis.

Kyphoscoliosis combination of kyphosis and scoliosis.

Kyphosis/kyphotic curvature of axial skeleton, with accentuated posterior apical apex.

Lesion pathologic area.

Lordosis curvature of axial skeleton, with accentuated anterior apical apex. Usually refers to lumbar spine.

Lymphoid anatomic system of vessels and glands which drain and filter, respectively, interstitial fluids.

Lymphoma malignant neoplasia of lymphoid tissues.

Lymphosarcoma variety of malignant neoplastic tumor of lymphoid origin.

Lytic destruction of structures (herpetologic definition), contrasted with use in this annotated bibliography to holes in bone.

Macrocephaly large or long head (= dolichocephaly).

Macrodactyly = dactylomegaly.

Macromelia long limb.

Medullary marrow space.

Melanoma malignant neoplasm of the variety of skin cells that are capable of producing the pigment melanin.

Melomely form of hypermely with additional extremity(ies) at the base of the normal extremity.
Meromely absence of digits (= adactyly).
Mesenchymal those mesodermally derived cells which form the musculoskeletal, vascular, lymphatic, and urogenital systems.
Mesoderm embryonic germ layer between ectod and endoderm.
Metabolic bone disease nonspecific term which includes many diseases (e.g., osteoporosis, fibrous osteodystrophy, osteomalacy, rickets). According to Lillewhite, disease related to inadequate dietary calcium or UV light exposure. Actually, probably a renal osteodystrophy.
Microcephaly abnormally small head, snout blunted.
Microcheiria small paw.
Microdactyly = brachydactyly.
Micromely small or short limb (= nanomely).
Museum/Collection Abbreviations:
AMNH American Museum of Natural History, New York City.
AUMP Auburn University Museum of Paleontology, Auburn, Alabama.
BMS Buffalo Museum of Science, Buffalo, New York.
IVPP Institute of Vertebrate Paleontology and Paleoanthropology, Beijing, China.
KU University of Kansas, Lawrence, Kansas.
MNCN Natural History Museum of Madrid, Spain.
MSU Michigan State University, East Lansing, Michigan.
NMNH National Museum of Natural History, Smithsonian, Washington, D.C.
ROM Royal Ontario Museum, Toronto, Canada.
UCMP University of California Berkeley Museum of Paleontology.
UFMNH University of Florida Museum of Natural History, Gainesville, Florida.
UMMZ University of Michigan Museum of Zoology, Ann Arbor, Michigan.
USNM National Museum of Natural History, Smithsonian, Washington, D.C.
Mutation heritable genetic alteration.
Mycobacteria rod-shaped, acid-fast gram-positive bacteria. One variety causes tuberculosis.
Mycoplasma A species-dependent pathologic microorganism lacking a cell wall.
Nanomely small or short limb (= micromely).
Necrosis tissue death.
Neoplasm new, abnormal tissue growth.
Notomaly additional extremity(ies) on the back (dorsum).
Oligodactyly less than normal number of digits.
Opisthodichotomy axial duplication with two complete bodies and single cranium.
Opodidymus cranium bifurcated two broadly joined heads (mostly three-eyed).
Osteitis inflammation of bone (herpetologic definition), contrasted with use in this annotated bibliography to identify bone infection, not discriminating use from osteomyelitis.
Osteitis fibrosa cystica fibrous tissue replacement of bone secondary to exaggerated osteoclastic resorption in hyperparathyroidism.
Osteoarthrosis = osteoarthropathy overgrowth of diarthrodial joint margins, producing osteophyte.
Osteoarthropathy = osteoarthritis.
Osteochondritis dessicans detachment of an articular bone fragment. May complicate intra-articular fracture or avascular necrosis. Often mistakenly called osteochondrosis.
Osteochondrodysrophy variation on chondrodysrophy, wherein the axial skeleton is also affected, often producing flattened or wedged vertebrae.
Osteochondroma benign neoplasm producing a cartilage cap on an exostosis.
Osteochondrosis failure of cartilage region to ossify (transform into bone). Often mistakenly referred to as degenerative cartilage.
Osteochondroasrosarcoma malignant neoplasm derived from both bone and cartilage.
Osteoclastic cells responsible for resorption component of bone remodeling.
Osteodystrophy defective bone formation.
Osteoid the framework for calcification secreted by bone cells.
Osteolysis resorption or destruction of bone.
Osteoma benign tumor of bone cells.
Osteomalacia vitamin D deficiency-related softening of bone with failure of mineralization,
Glossary

usually refers to the disease in adults (in children, referred to as rickets).

Osteomyelitis infection of bone. Inflammation of marrow cavity (herpetologic definition), contrasted with use in this annotated bibliography to identify bone infection not limited to the external surface.

Osteopathy combination of osteomalacia and rickets.

Osteopenia reduced bone ossification/density.

Osteoperiostitis inflammation/reaction of/at both the outer layer (periosteum) and underlying component (cortex) of bone.

Osteophyte abnormal bony overgrowth extending from margins of articular surfaces of diarthrodial joints. They are the identifier for the condition called osteoarthritis. When affecting vertebral bodies, they are indicative of spondylosis deformans, not osteoarthritis.

Osteoporosis reduction in quantity and quality (e.g., thickness) of trabecular components of bone. Deficient bone mineral content, associated with loss of structural integrity.

Osteosarcoma malignant bone neoplasm.

Osteosclerosis increased bone density.

Osteopetrosis failure of endosteal bone resorption during growth, resulting in much diminished or absent medullary cavity.

Otocephaly absent or underdeveloped lower jaw.

Pachyostosis benign bone thickening.

Paedomorphosis adult retention of juvenile characteristics.

Panostitis reaction of all bone layers (typically sclerosis).

Pathogenesis development of a disease.

Pathognomonic definitive for a specific disease diagnosis.

Pedemorphosis adult retention of juvenile characteristics.

Periosteopathy any disorder of the outer layer (periosteum) of bone.

Periostitis inflammation/reaction of/at outer layer of bone.

Phocomely incomplete limb with missing proximal portion.

Polyarthritis multiple joint involvement by arthritis. Medical convention limits use of the term to individuals with affliction of 5 or more joints. This convention is not necessarily followed.

Polydactyly increased number of metatarsals (= hyperdactyly).

Polymely additional limbs.

Polypody a limb with two or more hands or feet.

Polychalangy duplicate phalangeal sets.

Podagra pedal gout.

Porosity volume of openings in rock/soil (herpetologic definition), contrasted with use in this annotated bibliography to identify presence of minute surface holes in bone.

Prodichotomous duplication of head and neck.

Pseudoarthritis false joint related to failure of fracture components to unite.

Pseudogout acute attacks of calcium pyrophosphate deposition disease - crystals of calcium pyrophosphate dihydrate accumulate in the hyaline articular cartilage or fibrocartilage.

Psodidymus parasacral bifurcation.

Psodymus vertebral column bifurcated near sacrum.

Pygomely additional extremity(ies) behind or within the pelvic region.

Pygopagus fused at pelvis.

Rachitis = rickets.

Reactive arthritis form of inflammatory arthritis characterized by erosions and new bone formation, affecting peripheral and/or axial skeleton. It is a form of spondyloarthropathy.

Renal disease disease of the kidney.

Renal osteodystrophy combination of vitamin D deficiency (osteomalacia) and hyperparathyroidism.

Rhinocephaly proboscis-like nose overlying partial or complete eye fusion.

Rhinodymus minimum degree of duplication in mouth and nose area, double-nosed (two snouts).

Rhoeosis vertebral displacement.

Rickets failure of bone osteoid to calcify. Related to deficiency of active form of vitamin D. Usually refers to individuals in whom/which epiphyses have not fused (in adults, called osteomalacia).
Sarcoma  malignant tumor of mesenchymal cell origin.
Scoliosis  lateral curvature of the vertebral column.
Scurvy  vitamin C deficiency.
Septic joint  infected joint.
Sesamoid  normal intratendinous bone. It provides mechanical advantage to the muscles whose tendons transgress the area.
Shunting  redirecting.
Sirenomelia  side to side fusion of lower extremities, often associated with pelvic reduction.
Sjögren’s syndrome  disorder characterized by a complex of symptoms including dry eyes (keratoconjunctivitis), dry mouth, and arthritis.
Spondyloarthropathy  inflammatory arthritis characterized by erosions and new bone formation in animals, affecting peripheral and/or axial skeleton.
Spondylisis (actually spondylisis deformans)  term accurately utilized to describe vertebral body osteophytes. This is not a sign of osteoarthritis. It is sometimes inaccurately utilized to describe vertebral ankylosis. The latter actually is properly termed a syndesmophyte and is a sign of spondyloarthropathy.
Spongiform bone  expansion of cancellous bone at distal tip of ectromelic limbs.
Symmelia  fused limb.
Symodia  fused paw.
Syndactyly  fusion or failure of separation of fingers or toes. Fusion of two or more pedal elements.
Syndesmophyte  calcification/ossification of outer layer of annulus fibrosus. A sign of spondyloarthropathy.
Synovial  referring to diarthrodial articulation.
Taumely  long bone bent back on itself, forming >90° angle.
Teratogeny  concept (precept, knowledge) of causes of formation of anomalies.
Teratology  concept (precept, knowledge) of formation of anomalies. Study of embryologic malformations.
Teratodymus  an individual with part of body doubled.
Teratopagus  independent axial skeletons (e.g., Siamese twins).
Thoracodymus  vertebral column bifurcated in the thoracic region.
Ulcerative disease  lesion resulting from disruption of surface.
Urodele  salamanders.
Uranoschisis  cleft palate.
Uveitis  inflammation of the middle coat of the eye, which may be a component of reactive arthritis.
Vasculitis  inflammation of blood vessels.
Zygodactylus  fusion of digits in bundles of two or three.
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