A dog’s life.
Multiple trauma and potential abuse in a medieval dog from Guimps (Charente, France)

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Summary
- The animal presents numerous osteological lesions, including a medial patellar dislocation and an uncommon case of radius-curvus.
- The lesions are shown to be all of traumatic origin and occurred in at least three independent events.
- The chronology and the skeletal distribution of the trauma are typical of modern-day animal abuse.

Radius-curvus
Pathogenesis
- Antebrachial growth deformity
- Caused by premature closure of distal ulnar physis in actively growing dogs
- Consequence of direct or indirect trauma to distal ulna
- Before the age of 10 months

Lesions
Closure of the distal ulnar physis:
1. Ulna stop growing: shortened ulna
2. Radius continues to grow: bends away from ulna and acquires distinctive cranio-medial curvature
3. Radius twists at distal extremity and pushes on carpal joint: valgus and supination of the hand
4. Radius pushes on elbow joint: elbow malarticulation

- Traumatic origin
- Occurred before the age of 10 months

Archaeological context
- Preventive excavations led by ArcheoLoire in Guimps in 2011
- Medieval rural settlement, continuous occupation VIII-XVII centuries
- Isolated silo, containing little material apart from a single dog skeleton
- Dated by ceramic typology to the earliest phase of the site, VIII-Xth c., radiocarbon pending, perhaps contemporary with several sunken-floored buildings

The remains
- Sub-complete skeleton of domestic dog
- Young adult, 2-4 years old, probably female
- Medium-sized, average conformation, sheepdog like or common breed
- Excellent preservation, no anthropic traces and especially no cut-marks

Q. How can these injuries be explained?
- Five independent lesions of traumatic origin, at least three separate events. Interpretation should explain the lesions collectively and take into account their skeletal distribution.
- In present-day dogs:
  - Blunt force trauma (BFT) is the most common form of abuse
  - Pattern of injury in BFT-abuse includes multiple fractures at different stages of healing, particularly when located on the head, the ribs or the spine
- Locations identified by clinical findings in abused dogs and supported by behavioral considerations:
  - Humans: most common forms of BFT-abuse are:
    - Kicking: Upwards movement, injures mostly belly, ribs and nose in medium-sized dogs
    - Hitting with a stick: Downwards movement, injures mostly head and spine
- Dogs: three possible responses to aggression:
  - Return aggressiveness: presents head to aggressor
  - Fight: presents hind quarters and lower back
  - Protective curling up: presents sides, forelimbs and spine
- Second blow likely to end up in these locations.
- The animal presented nose, rib and spine injuries in different stages of healing, as well as injuries of a foreleg and of a hindleg.
- Abuse appears extremely probable.

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Bibliographical references on separate sheet, available on request.