**Introduction**

- During the Eastern Zhou period in China (722 – 221 BC), while numerous agrarian-based states vied for power in the Central Plain, pastoral nomadic societies emerged northward in the Mongolian steppes.
- Southern (Inner) Mongolia marked China's northern frontier, a transitional zone that could support pastoralists and Chinese farmers; this was an area of constant friction.
- Bioarchaeological analysis of trauma in ancient skeletal remains of individuals who occupied this region give insight into:
  1. Risk of trauma in this contentious zone during a turbulent period.
  2. Trauma associated with the transition from agropastoralism to pastoral nomadism.

**Archaeological Context**

- Late Bronze Age (7th to 4th century BC) cemetery located in the village of Linxi Jinggouzhu (LJ) near Chifeng, Inner Mongolia (Fig. 1).

**Materials and Methods**

- LJ pastoral sample (N=129) (Fig. 4).
- Comparative late Bronze/early Iron Age pastoral nomadic samples (YNQ, N=52 and SAY, N=93) from Xinjiang.
  - Pastoral nomadic patterns of injuries.
  - Differences in prevalence of trauma in area further from Chinese border?
  - Comparative agrarian sample (BL, N=492) from nearby Liaoning province (AD 265-535).
  - Risk of injury based on economic strategy.
- Commonalities in prevalence of trauma near border?

**Data collected:**

1. Data for age and sex.
2. Traumatic injuries observed: cranial, nasal, and long bone fractures; projectile wounds; and cutmarks.
3. Location, state of healing, and pattern of injury.

**Results**

**LJ results (Table 1):**

- Only adult females had cranial fractures, which were all healed, often on left parietal (Fig. 5).
- Two males displayed evidence of interpersonal violence (Fig. 6).
- Long bone fractures were all well healed, simple fractures, isolated.

**Note:** Only instance of a juvenile fracture among all samples, a healed metatarsal fracture in the agrarian sample.

**Discussion**

- Trauma was more common in adults than juveniles, likely from cumulative exposure to dangers. Long bone fractures were usually healed and isolated instances within a given person, suggesting accidental cause versus interpersonal violence. The pattern of injury in LJ sample is similar to clinical reports of trauma from horseback riding.

- Among all samples, younger to middle aged males had higher rates of cranial and long bone fractures, which may be linked with their active lifestyles, close association to animals, and interpersonal violence (intra- and inter-group).

- Pastoral nomads had a relationship with Chinese characterized as "trade or raid", and warfare was common among pastoralists for pastures.

- Intra-group conflict, often associated with facial/nasal fractures (Fig. 6), is present in comparative samples, suggesting tension within those groups.

- Inter-group conflict faced by LJ sample is suggested by cases of cranial trauma and an embedded point.

- High rate of cranial fractures in LJ adult females may be explained by the risk for violent interactions their group faced in occupying a contentious zone. LJ females may have had especially high exposure to danger as victims in raids.

- Overall, the risk of trauma was greater in the LJ sample than in comparative pastoral and agrarian samples, likely due to their movement in the contested borderzone, as well as risks associated with their pastoral nomadic mode of subsistence.

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*Figures and Tables:

- Fig. 1: Map of sites in northern China.
- Fig. 2: Point embedded in bone.
- Fig. 3: Weapons in graves, mostly bronze and bone (adapted from Wang et al., 2005).
- Fig. 4: Age and sex distribution in LJ (N=129).
- Fig. 5: LJ female cranial trauma.
- Fig. 6: Evidence of interpersonal violence in LJ males.
- Fig. 7: Distribution of fractures by sex.
- Fig. 8: Distribution of fractures by age.
- Table 1: Trauma distribution, type, and rate of healing in LJ sample.
- Table 2: Significance of difference in fracture rates (n.s. = not significant).
- Table 3: Significance of difference in fracture distribution (n.s. = not significant).