

# Caudal autotomy as anti-predatory behaviour in Palaeozoic reptiles

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## Supplementary Information

**Extended Data Table 1.** Captorhinid caudal vertebrae examined in this study

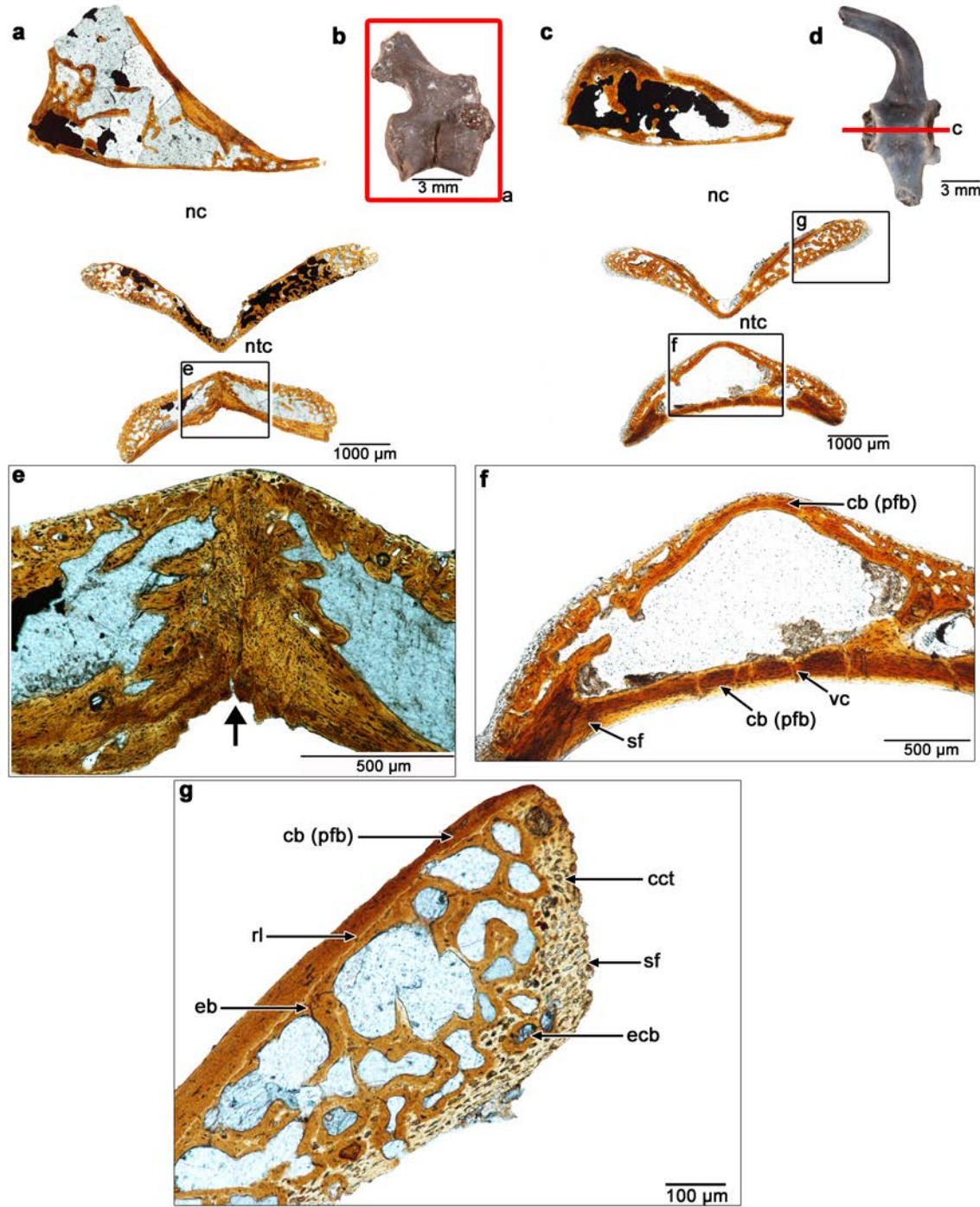
| Number    | Description                                                       | Size <sup>1</sup> |
|-----------|-------------------------------------------------------------------|-------------------|
| ROM 75623 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75624 | Anterior caudal with fracture plane                               | 3 mm              |
| ROM 75625 | Anterior caudal with fracture plane                               | 3 mm              |
| ROM 75626 | Anterior caudal with fracture plane                               | 3 mm              |
| ROM 75627 | Anterior caudal with fracture plane                               | 5 mm              |
| ROM 75628 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75629 | Anterior caudal with fracture plane                               | 5 mm              |
| ROM 75630 | Anterior caudal with fracture plane                               | 5 mm              |
| ROM 75631 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75632 | Anterior caudal with fracture plane                               | 6 mm              |
| ROM 75633 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75634 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75635 | Anterior caudal with fracture plane                               | 6 mm              |
| ROM 75636 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75637 | Anterior caudal with fracture plane                               | 5 mm              |
| ROM 75638 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75639 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75640 | Anterior caudal with fracture plane                               | 5 mm              |
| ROM 75641 | Anterior caudal with fracture plane, transverse processes present | 7 mm              |
| ROM 75642 | Anterior caudal with fracture plane                               | 5 mm              |
| ROM 75643 | Anterior caudal with fracture plane                               | 6 mm              |
| ROM 75644 | Anterior caudal with fracture plane                               | 3 mm              |
| ROM 75645 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75646 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75647 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75648 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75649 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75650 | Anterior caudal with fracture plane                               | 5 mm              |
| ROM 75651 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75652 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75653 | Anterior caudal with fracture plane                               | 5 mm              |
| ROM 75654 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75655 | Anterior caudal with fracture plane                               | 3 mm              |
| ROM 75656 | Anterior caudal with fracture plane                               | 3 mm              |
| ROM 75657 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75658 | Anterior caudal with fracture plane                               | 3 mm              |
| ROM 75659 | Anterior caudal with fracture plane                               | 4 mm              |
| ROM 75660 | Anterior caudal with fracture plane                               | 4 mm              |

|            |                                                                      |       |
|------------|----------------------------------------------------------------------|-------|
| ROM 75661  | Anterior caudal with fracture plane                                  | 3 mm  |
| ROM 75662  | Anterior caudal with fracture plane                                  | 3 mm  |
| ROM 75663  | Anterior caudal with fracture plane                                  | 2 mm  |
| ROM 75664  | Anterior caudal with fracture plane                                  | 3 mm  |
| ROM 75665  | Anterior caudal with fracture plane                                  | 4 mm  |
| ROM 75666  | Anterior caudal with fracture plane                                  | 3 mm  |
| ROM 75667  | Anterior caudal with fracture plane                                  | 4 mm  |
| ROM 75668  | Anterior caudal with fracture plane                                  | 4 mm  |
| ROM 75669  | Anterior caudal with fracture plane                                  | 3 mm  |
| ROM 75670  | Anterior caudal with fracture plane                                  | 4 mm  |
| ROM 75671  | Half an anterior caudal, split at the fracture plane                 | 2 mm  |
| ROM 75672  | Anterior caudal with fracture plane                                  | 3 mm  |
| ROM 75673  | Anterior caudal with fracture plane                                  | 5 mm  |
| ROM 75674  | Series of two anterior caudals with fracture planes                  | 7mm   |
| ROM 75675  | Anterior caudal with fracture plane                                  | 3 mm  |
| ROM 75676  | Anterior caudal with fracture plane                                  | 3 mm  |
| ROM 75677  | Anterior caudal with fracture plane                                  | 6 mm  |
| ROM 75678  | Anterior caudal with fracture plane                                  | 8 mm  |
| ROM 75679  | Anterior caudal with fracture plane                                  | 6 mm  |
| ROM 75680  | Anterior caudal with fracture plane                                  | 4 mm  |
| ROM 75681  | Series of two anterior caudals with fracture planes                  | 10 mm |
| ROM 75682  | Anterior caudal with fracture plane, transverse processes present    | 6 mm  |
| ROM 75683  | Anterior caudal with fracture plane                                  | 7 mm  |
| ROM 75684  | Anterior caudal with fracture plane                                  | 3 mm  |
| ROM 75685  | Anterior caudal with fracture plane, transverse process on left side | 6 mm  |
| ROM 75686  | Anterior caudal with fracture plane                                  | 4 mm  |
| ROM 75687  | Anterior caudal with fracture plane                                  | 4 mm  |
| ROM 75688  | Anterior caudal with fracture plane                                  | 6 mm  |
| ROM 75689  | Series of two pathological caudals with fracture planes              | 6 mm  |
| ROM 77409  | Anterior caudal with break along fracture plane                      | 4 mm  |
| OMNH 1020  | Partial caudal series of a juvenile captorhinid                      | 3 cm  |
| OMNH 03304 | Partial dorsal and caudal series of a captorhinid                    | 3 cm  |
| OUSM 15024 | Partial caudals series of <i>Captorhinus laticeps</i>                | 4 cm  |

<sup>1</sup>Anteroposterior length of the vertebra, or vertebrae if they are a series.

**Extended Data Table 2.** Vertebrae that were histologically sectioned in this study.

|           |                                                     |
|-----------|-----------------------------------------------------|
| ROM 73769 | Anterior caudal with a fracture plane               |
| ROM 73770 | Anterior caudal with a fracture plane               |
| ROM 73771 | Anterior caudal with a fracture plane               |
| ROM 73772 | Anterior caudal with a fracture plane               |
| ROM 73773 | Anterior caudal with a fracture plane               |
| ROM 73774 | Anterior caudal with a fracture plane               |
| ROM 77410 | Anterior, rib bearing caudal without fracture plane |



**Extended Data Figure 1.** Additional vertebrae sectioned for this study. **a**, sagittal section of a caudal vertebra (ROM 73772) with visible fracture plane (**b**). **c**, sagittal section of an anterior, rib-bearing caudal vertebra (ROM 77410) lacking a fracture plane (**d**). **e**, closeup of ventral centrum wall in the sagittal section of ROM 73772 showing position of fracture plane. **f**, closeup of ventral centrum wall in the sagittal section of ROM 77410 showing the lack of a fracture plane within the cortical bone. **g**, closeup image of major tissue types of the centrum (taken from ROM 73774). Arrow indicates position of

fracture plane in thin section. Abbreviations: cb (pfb), cortical bone (parallel-fibered bone); cct, calcified cartilage; eb, endosteal bone; ecb, endochondral bone; nc, neural canal; ntc, notochordal canal; rl, reversal line; sf, Sharpey's fibers; vc, vascular canal.



**Extended Data Figure 2.** Series of seven haemal arch bearing caudal vertebrae belonging to an unidentified parareptile (identification based on presence of ventral keels on caudal centra) from the Early Permian Richards Spur locality (ROM 77622). Note the absence of fracture planes on the centra. Open neural central sutures indicate that this is a very young individual. **a**, dorsal view; **b**, lateral view; **c**, ventral view. Abbreviations: ncs, neural central suture; vr, ventral ridge.