

Observation of disk autotomy or possible fission in the basket star

(Order Euryarida, Class Ophiuroidea, Phylum Echinoderms)

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The basket stars distribute from the shallow reefs to the deep sea around the world, but their biology is little known. In particular, the information on their reproduction is very limited. There are only a few studies about sexual reproduction. Spawning of *Astrophyton muricatum* was observed in the field of Bahama (McMurray et al. 2012), and embryogenesis of *Gorgonocephalus cary* in the experiment tank (Patent 1970). About asexual reproduction, no information is available, thus it is unknown whether the basket stars are fissiparous or not.

Here, I report the first observation of disk autotomy or possible fission in the basket stars *Astrocladus coniferus*. The animal was captured by dragnet bycatch from 5 - 7 m in depth in Shimabara bay, Nagasaki prefecture, Japan in December 2014. *A. coniferus* was cultured with various Gorgonian corals for 5 months in the tank (60 x 45 x 45 cm) with the temperature 22–23 C°. *A. coniferus* always stayed on the branches of a purple Gorgonian coral *Menella rigida* with arms curled. *A. coniferus* ate fish powder (Kaisuikan) and white shrimp (Kyorin). On 6th May 2015, *A. coniferus* suddenly started the division of the body across the disk. 3 and 2 arms were grabbing two branches of the gorgonian coral in each, stretched out from both sides and the central disc was half torn (Fig. 1a, arrow). The disk autotomy or possible fission continued for two days, and the disk was completely torn off into 2 pieces (Fig. 1b, c). On 9th May, One of 2 disks was stretched out and broken into one arm and two small disks with arms (Fig.1c, arrow). As a result, there were 3 disks and one arm. One arm did not move after falling down from *A. coniferus*, but the 3 disks continued to live. Especially when they were fed, they actively moved, and the arms were fanning. However, the disks died within 7 days.

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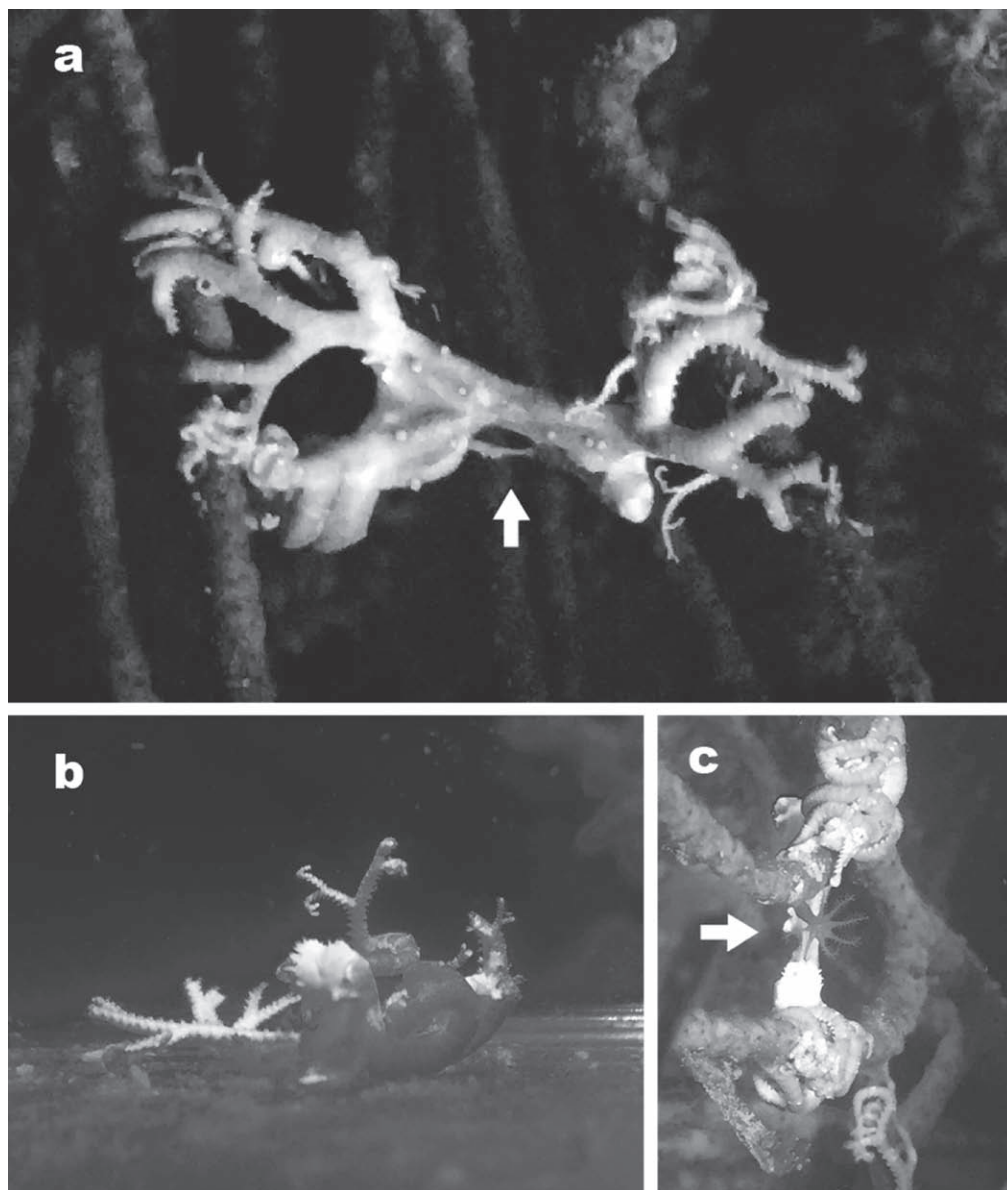


Fig. 1. (a) Autotomy of disk started. (b) Smallest piece of the disk. (c) Larger disk further torned off.

References

- McMurray SE, Vicente J, Jabanoski KE, Lewis TB (2012) Spawning of the basket star *Astrophyton muricatum* in the Bahamas. *Coral Reefs* 31: 703-703
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