An Outbreak of foodborne botulism in Denmark, June 2018

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Background
Foodborne botulism is a rare disease in most European countries. From 1985-2017, six sporadic cases occurred in Denmark. In mid-June 2018, patients with botulism were hospitalised in southern Denmark. An outbreak investigation was initiated, aiming to find the source and prevent further disease.

Methods
Cases and relatives were interviewed regarding food preparation and consumption. Blood samples from suspected cases and leftover food were analysed in a mouse lethality bioassay. Patient stools were cultured and Clostridium botulinum strains were genome-sequenced. Food items were traced back and evaluated by microbiological and physico-chemical laboratory analyses and by growth modelling.

Results
Nine persons who shared homemade dishes at a private dinner party, developed symptoms of botulism with varying severity. All were hospitalised, four for >1 month. All cases survived. No cases occurred outside of the closed group of dinner guests. Seven cases tested positive in the mouse assay for botulinum toxin A and Clostridium botulinum encoding toxin subtype A5 was cultured from three cases. All food served was consumed by all dinner guests. Leftovers of a homemade savoury jelly (aspic) tested positive for botulinum toxin A in the mouse assay. Growth modelling suggested that several days of temperature abuse could have occurred in either the entire dish or the ingredient, canned lumpfish roe.

Conclusions
A homemade dish caused an unusual outbreak of botulism from the rare toxin subtype A5. Temperature abuse of the dish or a canned roe product in which C. botulinum spores could have been present, likely formed part of the outbreak mechanism. Botulism still constitutes a real risk of food poisoning. Spore growth is possible in semi-conserved canned foods such as roe, if not stored properly refrigerated as labelled.

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