Poultry flocks as a source of Campylobacter contamination of broiler carcasses

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Abstract

Campylobacter infection is the leading foodborne bacterial gastroenteritis worldwide and the bacteria are frequently isolated from the intestines of chickens. The broiler meat contamination with C. jejuni or C. coli may occur during slaughter processing. The aim of the study was to investigate the prevalence of Campylobacter in poultry flocks and the corresponding broiler carcasses in 15 districts (voivodeships) all over Poland. A total of 128 samples from broiler flocks and the corresponding carcasses were collected between February 2011 and April 2013. The Campylobacter isolation and species identification were performed according to ISO 10272-1 standard and with PCR. It was found that 112 flock (96.5%) were contaminated with campylobacters, either C. jejuni (77 samples; 68.7%) or C. coli (35 flocks; 31.3%). Analysis of the corresponding chicken carcasses tested after chilling revealed that 77 out of 128 (60.2%) samples were positive for Campylobacter, either C. jejuni (58; 75.3%) or C. coli (19; 24.7%). Most of the carcasses were contaminated with the same Campylobacter species as identified in the corresponding flock before slaughter. As tested by PCR, out of the 77 crops with C. jejuni 58 were positive for the same bacterial species. On the other hand, out of the remaining 35 flocks infected with C. coli, only 19 corresponding carcass samples were contaminated with C. coli. In three cases in the slaughtered flocks C. jejuni was identified but in the same carcasses C. coli was found. The opposite findings (flock positive for C. coli but the corresponding carcasses contaminated with C. jejuni) were seen in six voivodeships. It was also observed that several carcass samples were negative for C. jejuni and C. coli although the original flocks were Campylobacter-positive before slaughter (total 36 of the 77 samples; 46.7%). On the other hand, some carcasses were contaminated with Campylobacter although the flocks were negative for these bacteria (9 samples; 11.7%) which may also be due to internal contamination during slaughter of broilers.

Key words: Campylobacter, Poland, broiler flocks, carcasses, cross-contamination

Introduction

Campylobacter infection is the leading foodborne bacterial gastroenteritis worldwide, and during last couple of years it has been the most commonly reported zoonosis in the European Union (EFSA 2014). In Poland, the number of laboratory confirmed campylobacteriosis cases is low but has increased during last few years (EFSA 2014). Campylobacter jejuni and, in a less extend C. coli, are commonly associated