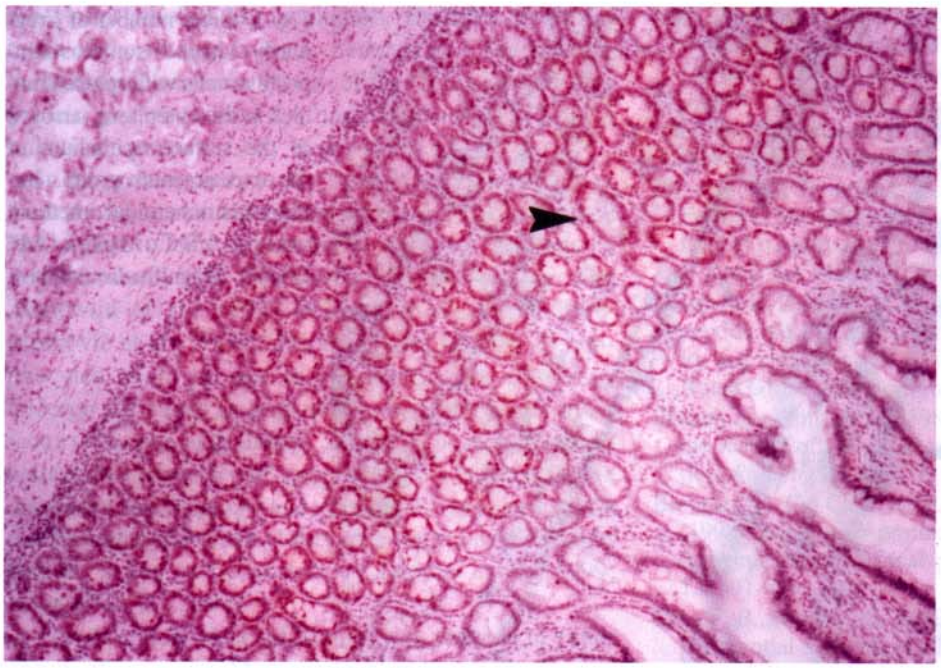

Fig. 3. Numerous PCNA-positive enterocytes (arrow) are seen at the base of the crypt in an experimental animal. Immunohistochemical method, strept-ABComplex/HRP, DAKO. Magnification 63x.

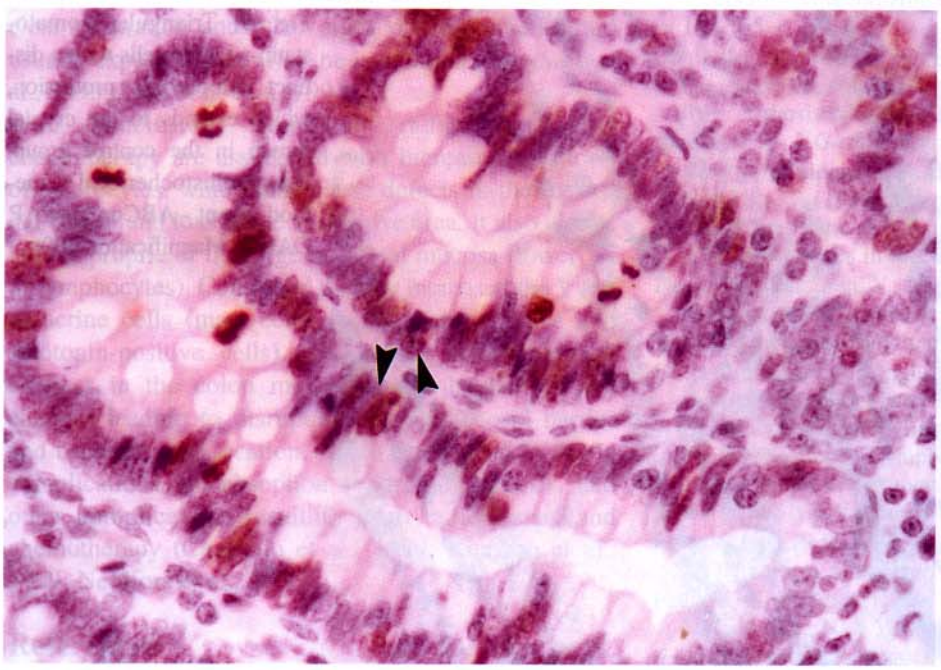

Fig. 4. PCNA-positive nuclei with nucleoli (arrows) in an experimental animal. Immunohistochemical method, strept-ABComplex/HRP, DAKO. Magnification 400x.

Discussion

In the present study we found out that combined radiotherapy and chemotherapy were associated with increased apoptosis of enterocytes in the first days after the therapy. In our previous study (Zorc-Pleskovič et al., 2000) we did not find any difference in the number of apoptotic enterocytes between the irradiated and non-irradiated dogs 10 days after irradiation. This discrepancy might be caused by several factors, including chemotherapy with platinol, or due to different excision time after the therapy (Trier 1987; Ramadan and Ali, 1988; Agarwal et al., 1999; Boushey et al., 2001). The apoptotic yield depends on the dose of the ionizing radiation, time after the exposure, the type of animal and the strain of the animals, and other agents such as 5-fluorouracil, cisplatin, or lovastatin (Potten, 1992; Potten et al., 1994; Potten and Grant, 1998; Agarwal et al., 1999; Pritchard et al., 2000). The highest apoptotic yield in the mouse model was seen at about 6 Gy in the large intestine, and few hours after exposure to ionizing irradiation (Potten, 1992; Cai et al., 1997; Potten and Grant, 1998). We did not study the mechanism of apoptosis, but most probably apoptosis is p53 dependent (Meritt et al., 1994; Arai et al., 1996; Wilson et al., 1998; Komarova et al., 2000). Apoptosis of enterocytes may cause defects in the intestinal barrier (Bojarski et al., 2000; Iwakiri et al., 2001) and loss of the absorptive