

sities after whole-body irradiation. The clinical importance of the finding is yet to be evaluated, but changes in the enteroendocrine system of the large intestine may explain gastrointestinal dysfunction observed following radiation exposure (Lehy et al., 1998).

In the present study lower Vv of lymphocytes in dogs treated with combined radiotherapy and chemotherapy was found, which is consistent with our findings in dogs treated with irradiation alone (de Roy van Zuidewijn et al., 1992; Dolcetti et al., 1999; Zorc-Plesković et al., 2000). The decreased number of lymphocytes might be due to apoptosis, since they may undergo apoptosis in response to irradiation and other factors (Kaiser and Bodey, 2000). It is reasonable to believe that lower Vv of lymphocytes in colon after the combined radiotherapy and chemotherapy may explain the diminished defence ability of intestine, which might lead to septic complications (Campillo et al., 1999; Nejdorfs et al., 2000).

Polymorphonuclear infiltration was not seen in either group of animals. Mononuclear and polymorphonuclear infiltration and other signs of inflammation are usually expected later after the irradiation (Hopewell et al., 1993; Langberg et al. 1994).

In conclusion, combined radiotherapy and chemotherapy are associated with increased apoptosis of enterocytes, which may cause defects in the intestinal barrier and loss of the absorptive area. It also affects lamina propria of the large intestinal mucosa (lower Vv of lymphocytes). Combined therapy increased the Vv of paracrine cells (mast cells, somatostatin-positive and serotonin-positive cells). These early morphological changes in the colon mucosa might be the earliest changes leading to disruption of the mucosal barrier and bacterial translocation, which might lead to septic complications, malabsorption syndrome, stenosis, and other complications resulting from radiotherapy and chemotherapy (Campillo et al., 1999; Kompan et al., 1999; Nejdorfs et al., 2000).

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