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CELLULAR MICROENVIRONMENT AND COLLAGEN DESTRUCTION DURING PERIODONT INFLAMMATION

ABSTRACT. Background. The association between periodontitis and collagen damage with immune cells is an actual problem. Periodontitis is a bacterially induced exacerbation of chronic process and chronic inflammatory disease that destroys teeth supporting connective tissue. Bacteria initiate periodontitis and destruction of the alveolar periodontal connective tissue. **Objectives.** Immune cells location between damaged collagen fibers remains obscure and this is the purpose of the current study. **Results.** We have determined five variants of immune cells microenvironment: nodular, trabecular, diffuse, mixed. We have observed five types of collagen structures destruction in exacerbation of chronic process and chronic periodontal inflammation. They are characterized by swelling, pulping and insignificant necrosis. **Conclusion.** Connective tissue has signs of swelling and destruction during inflammation; edema is observed between collagen fibers. Collagen fiber damage during periodontitis is caused by neutrophils. Widespread edema of collagen fibers increasing of depth cells infiltration during chronic inflammation. Nodular type of immune cells microenvironment is observed during outcome of chronic inflammation. Trabecular type of immune cells microenvironment is observed during exacerbation of chronic process. Diffuse type of immune cells microenvironment is observed during chronic inflammation process.

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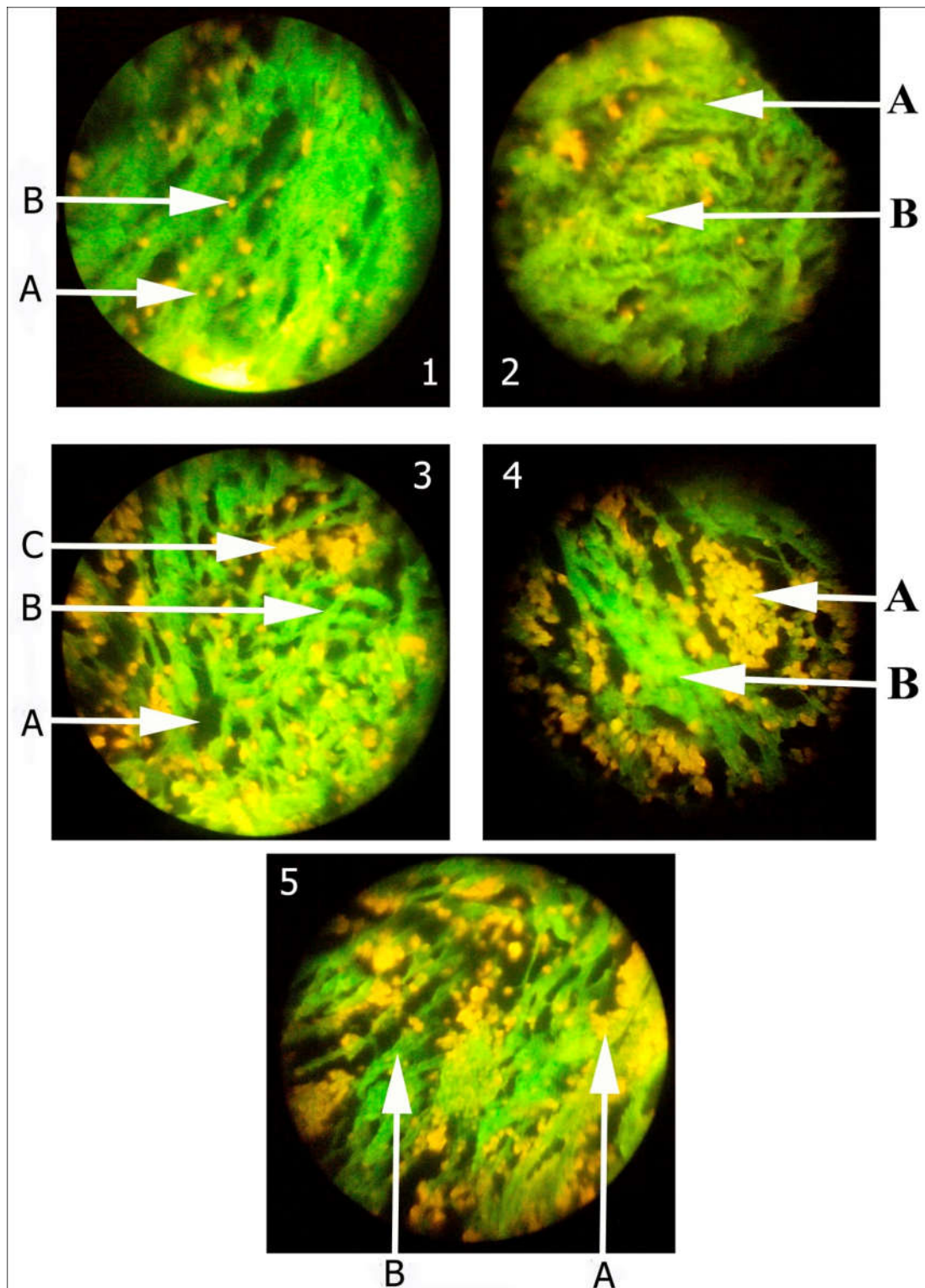


Fig. 1. Changes in collagen during inflammation.

1 - normal connective tissue: A – connective tissue, B – immune cells;

2 - exacerbation of chronic inflammation: A – swelled destruction of connective tissue B – immune cells;

3 - chronic inflammation: A – collagen fibers edema B – complex patterns of collagen destruction C - immune cells form the layers or trabeculae;

4 - outcome of the chronic inflammation: A – leukocytes accumulate in foci B – trabeculae of connective tissue;

5 - outcome of the chronic exacerbation inflammation: A – different forms of inflammatory infiltration B – trabeculae of connective tissue.

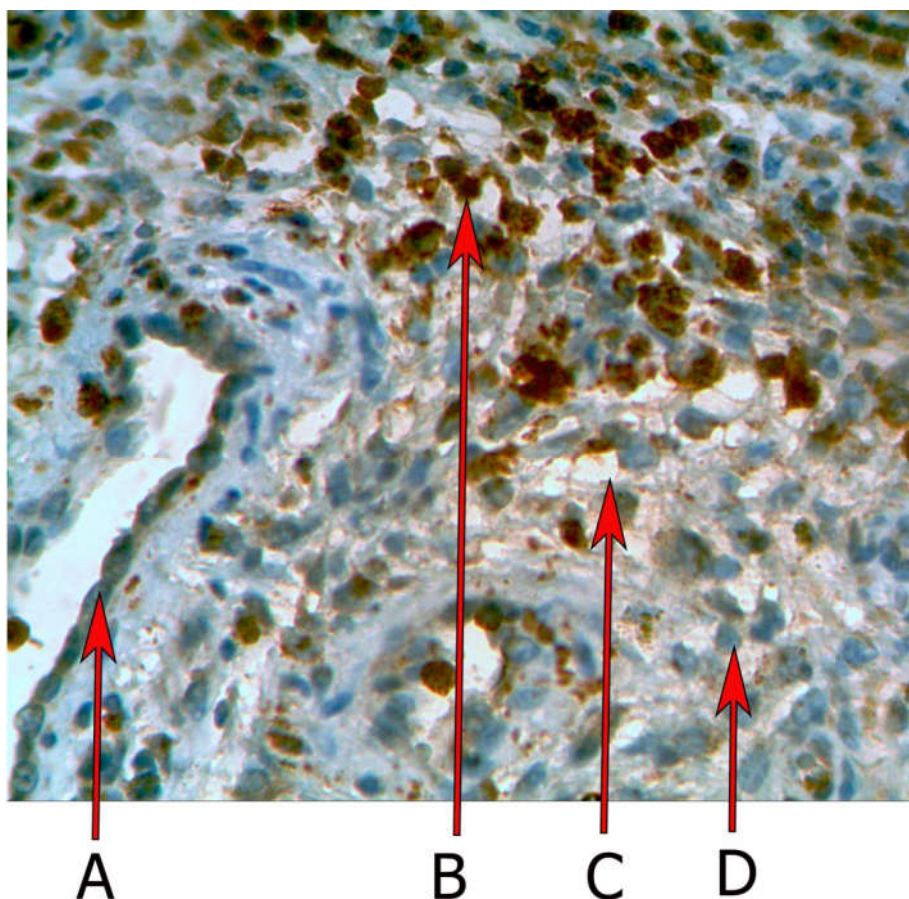


Fig. 2. Immunoexpression of MPO in chronic inflammation. A – vessel; B – MPO positive cells; C – edema; D - MPO negative cells. ×320.

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