



Pathomorphological characteristics of the urinary bladder polyp

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ABSTRACT

This article presents information about pathomorphological characteristics of bladder polyp. In the fibromatous form of the bladder polyp, it was observed that the stroma is dense, the fibers are coarse and concentrated, there are few blood vessels, and it consists of a dense fiber bundle. In most cases, it was found that the stroma of the urinary bladder polyp was rich in inflammatory infiltrate, in which the inflammatory process developed chronically, with lymphohistiocytic infiltrate, in a diffuse manner. Among the polyps of the bladder, it was found that the stroma is rich in blood vessels.

Key words: bladder, polyp, pathomorphology, stroma, inflammation.

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INTRODUCTION

A polyp is a tumor that protrudes from the surface of the mucous membrane as a result of hyperplastic processes of mesenchymal tissues. Bladder tumors in men occur in a ratio of 4:1 in men to women. The abundance in men is due to their greater contact with carcinogenic substances and the constant wetness of urine in the bladder. Bladder tumors are observed in most cases in people over 50 years old. Bladder tumors are very rare in young children, 60 times less often compared to adults. Tumors can be located in any area of the bladder, but in most cases, they are located more in the lower triangle. According to the results of the research conducted in the second half of the 19th century, it was observed that people working with aniline dye had a high incidence of bladder tumors. Tests show that f-naphthylamine, benzidine, which are sour amines, are not considered carcinogenic, but their metabolite orthoaminophenol causes tumor development. It is known that skatole and indole, which appear during the metabolism of the human body and the decomposition of aromatic amines, are considered carcinogenic substances for the bladder. It is scientifically proven that the increase in the amount of these substances in the urine increases the development of tumors. The mucous membrane of the bladder and its covering epithelium have their own characteristics in terms of histotopographical and microscopic characteristics. In fact, the mucous membrane is covered with a multi-layered variable epithelium, the number of cells in which is from 3 to 6 rows. The cells located in the surface layers are larger and their specificity is that they synthesize mucin, similar to glandular epithelium, so this epithelium is called variable or urothelium.

Bladder polyps are papillary structures with a fibromatous and angiomatous peduncle, and its surface facing the bladder cavity is covered by urothelium. Polyps often appear in the form of a benign tumor, but can also appear as a result of inflammation, hyperplasia, hamartoma, heterotopia processes [1, 3, 5, 9]. Polyps stroma can have a fibromatous, angiomatous, adenomatous, myxomatous, and sometimes lipomatous structure depending on the type of tissue it consists of. A polyp is actually a neoplastic process and otherwise a benign tumor, which develops from a violation of the interaction of mesenchymal and epithelial tissues [2, 4, 6, 7].

Dishormonal disorders are among the reasons for the development of polyps, and against the background of a chronic infectious process, tissue dysregeneration begins and polyps appear [3, 8, 10]. Fibromatous, angiomatous and myxomatous stromal types are found in the majority of these histological types in the bladder. The mechanism of polyp development consists of several periods. In the initial period, interstitial tissue swelling, disorganization of mucopolysaccharides and fibrous structures develop in the submucous connective tissue of the area where the polyp appears. In the next period, connective tissue and blood vessels are reorganized and remodeling begins. In this case, the arrangement of cells, fibrous structures and blood vessels in this tissue becomes disordered, and its histotopography is sharply disturbed. New fibrous structures, proliferated connective tissue cells, blood and lymphatic vessels appear, and the connective tissue undergoes complete tissue atypism.

The purpose of the study. The purpose of this study is to determine the pathomorphological characteristics of bladder polyp.

MATERIALS AND METHODS

As material, pieces of bladder polyp obtained during surgery at the Republican Scientific and Practical Center of Urology and the Urology Department of the Bukhara Regional Hospital were taken. Polyp pieces were frozen in 10% formalin dissolved in phosphate buffer for 72 hours, then washed in running water for 3-4 hours, dehydrated in increasing concentration of alcohols and chloroform, embedded in paraffin with wax, and blocks were prepared. Histological sections with a thickness of 5-7 μm were taken from paraffin blocks, after deparaffinization, they were stained with hematoxylin and eosin. Fibrous structures of connective tissue were stained with picrofuchsin van Gieson method, carbohydrates were stained with SHIK-reaction method. Preparations were studied under a light microscope, and pictures of the necessary areas were downloaded to the computer.

RESULTS AND DISCUSSION

It is known that the growth of tumors on any mucous membrane begins after the development of biochemical, metabolic, inflammatory and dysregenerative processes in the private plate of submucous connective tissue. In particular, in the mucous membrane of the urinary bladder, under the influence of urine and under the influence of metabolic and inflammatory processes developed in the body, the composition of the connective tissue in the submucosal layer changes biochemically. connective tissue grows, the surface is covered with epithelium and turns into a polyp.

The fact that the morphogenesis of polyp development depends on the pathological changes in the submucosal connective tissue, a specific polyp appears as a result of the developed dysregenerative processes in which tissue grows. It is known that the consequence of any pathological process developed in the submucous connective tissue actually ends with sclerosing, therefore fibromatous polyp is more common among polyps. Morphologically, it is determined that the polyp's stroma is thickened to varying degrees, mainly the fibrous structures are irregularly arranged, the cells of the fibrous structures are few in many areas, the fibers are more abundant in the poorly developed areas, and it is manifested in the form of histiocytic infiltrate. Fibromatous tissue with dense and irregular fibrous structures is found to be located

mainly directly under the covering epithelium (Fig. 1). Also, it is observed that fibromatous tissue is well developed in many places of blood vessels. In a fibromatous polyp, it is determined that the wall of blood vessels in the stroma has thickened and narrowed the cavity due to sclerosis. In such a polyp, it is observed that the covering epithelium consists of multi-layered flat epithelium in most cases, and its basal layers are hyperchromic and dense, and some epitheliocytes are vacuolated in the surface layers.

In the fibromatous form of the bladder polyp, it is observed that the stroma is dense, the fibers are coarse and concentrated, there are few blood vessels, and it consists of a dense fiber bundle. It is determined that the cells in the stroma consist mainly of fibrocytes and fibroblasts, their nuclei are condensed, concentrated, and compressed between the fibers. It is determined that the rows of flat epithelium covering the surface are much thinner than the previous form, there are fewer rows, and frosting has appeared on the surface.

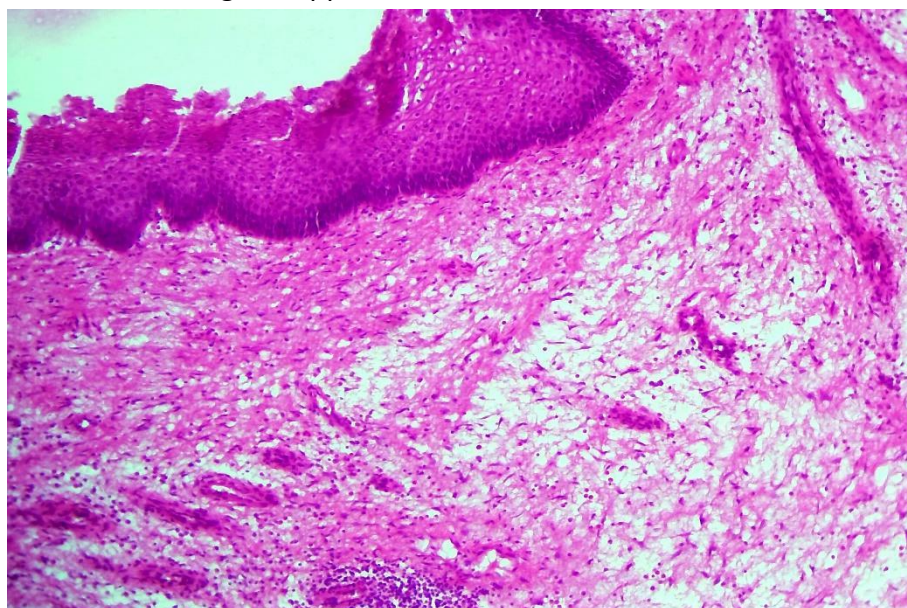


Figure 1. Bladder polyp, fibromatous form, the stroma consists of fibromatous tissue with varying degrees of density, the covering epithelium has a multi-layered flat epithelial structure. Paint "G-E. Magnification: 10×40.

It is observed that the cells of the basal layer of the epithelium are relatively larger and more darkly stained, while the cells in the middle layer are randomly arranged, and their nuclei are relatively small in size (Fig. 2). In the layers adjacent to the surface layer of the epithelium, the cytoplasm of epitheliocytes is wide and vacuolated. When a bladder fibromatous polyp is stained histochemically with picrofuchsin, it is revealed that there are few collagen fibers under the covering epithelium, and there are many and densely located in the inner parts (Fig. 3).

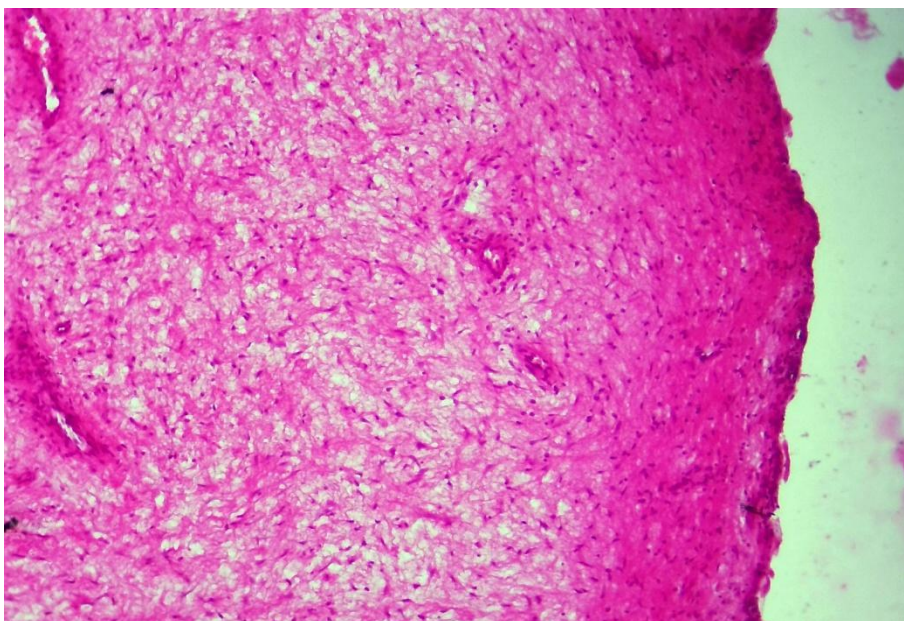


Figure 2. Bladder polyp, the stroma is composed of dense and rough fibrous fibromatous tissue. Paint: G-E. Magnification: 10×40.

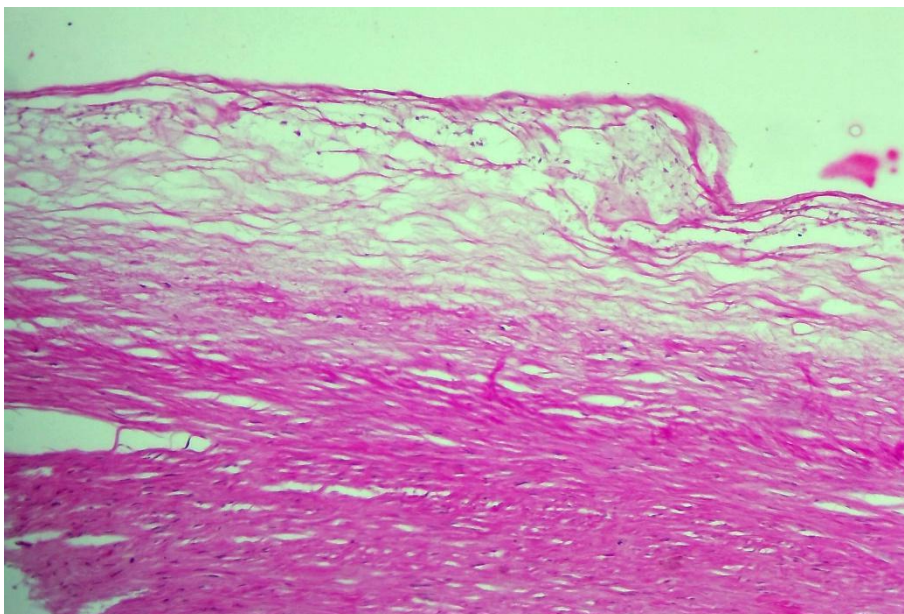


Figure 3. Fibromatous polyp of the urinary bladder, collagen fibers are few in the surface part of the stroma, and many and densely located in the middle parts. Paint: van Gieson. Magnification: 10×40.

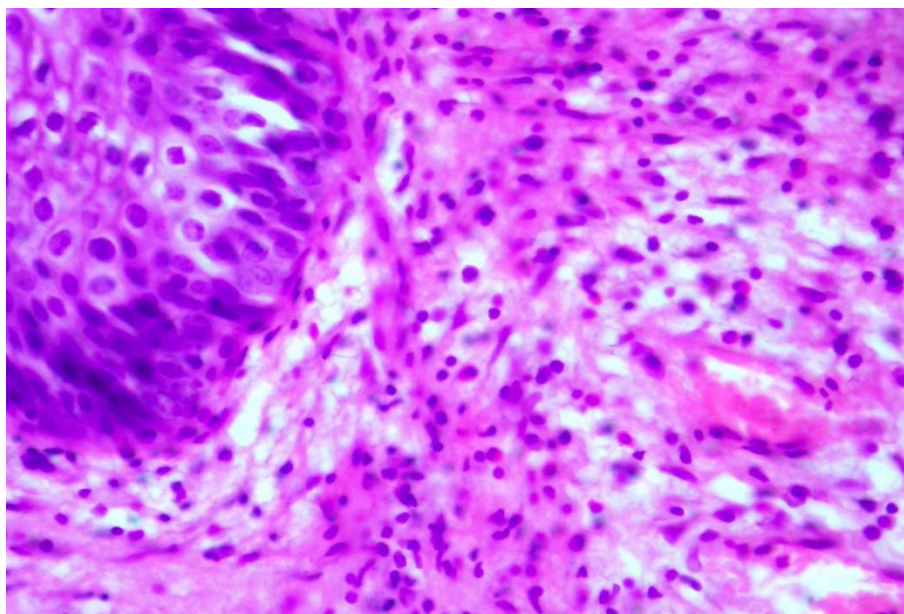


Figure 4. Bladder polyp, the stroma is diffusely filled with inflammatory infiltrate, the epithelium is vacuolated. Paint: G-E. Magnification: 10×40.

In most cases, it is determined that the stroma of the bladder polyp is rich in inflammatory infiltrate. In this case, it is observed that the inflammatory process is chronic, with lymphohistiocytic infiltration, developed in a scattered manner (Fig. 4). As a result of the inflammatory process, it is determined that both the fibrous structures and the intermediate substance in the connective tissue of the stroma are disintegrated, myxomatized, and swollen. It is observed that connective tissue cells proliferate and activate in response to inflammation, their nuclei become hyperchromic and hypertrophied. It is determined that the inflammatory infiltrate consists of lymphoid cells, leukocytes, and proliferated histiocytic cells. Lymphohistiocytic infiltrate is observed at the border of the covering epithelial basement membrane and stroma. From the composition of this infiltrate, it is determined that some lymphoid cells have migrated to the interstices of epithelial cells. It is found that the cytoplasm of the cells in the middle layers of the covering epithelium is vacuolated.

In some cases of inflammatory polyp, it is observed that lymphoproliferative inflammation prevails in the stroma of the inflammatory process (Fig. 5). In this case, it is determined that the inflammatory infiltrate contains a large number of lymphocytes and plasma cells, as a result of which both fibers and interstitial material are completely disintegrated from connective tissue structures and are filled with tumor fluid. It is observed that the blood vessels expand and become full due to inflammation, blood is poured around some of them by diapedesis method. The covering epithelium of this form of polyp is different from others, it is determined that the epitheliocytes are hyperchromized, their nuclei are hypertrophied and they are densely located with each other.

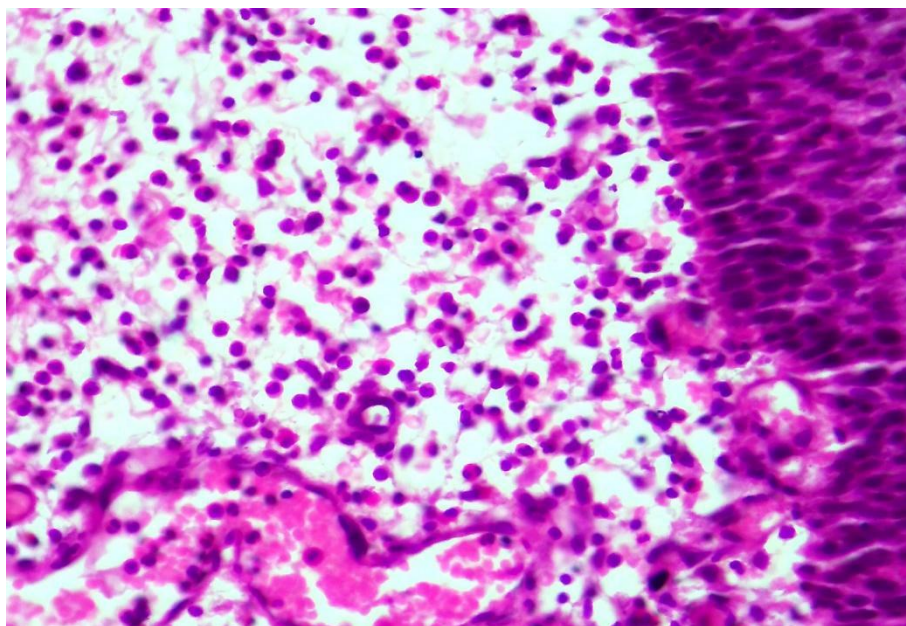


Figure 5. A strong lymphoproliferative inflammation has developed in the bladder polyp, stroma. Paint: G-E. Magnification: 10×40.

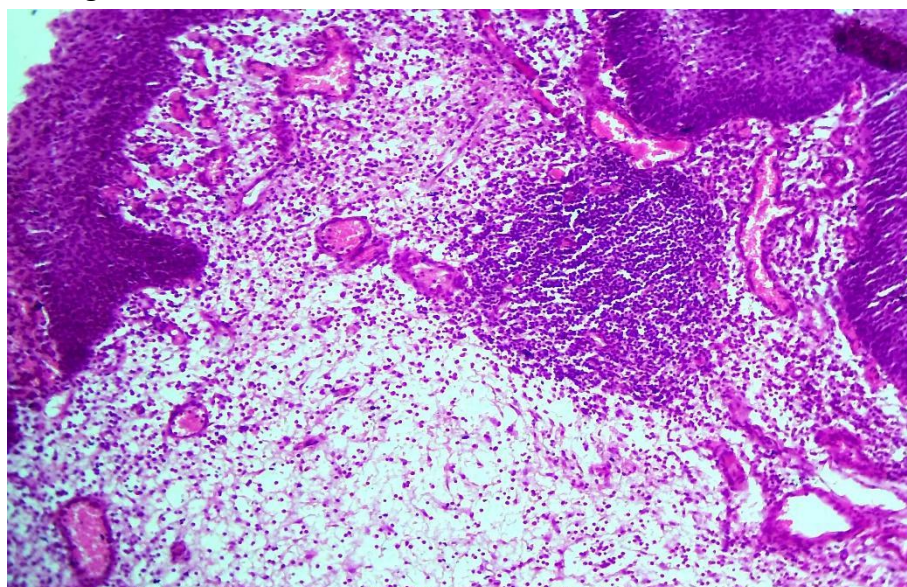


Figure 6. A lymphoid follicle appeared in the stroma of the bladder polyp. Paint: G-E. Magnification: 10×40.

In some cases of lymphoproliferative polyp, it is determined that lymphoid follicles have appeared in the stroma. In this case, the structure of lymphoid follicles is similar to the primary type of lymphoid follicle, it is mainly located in the area close to the covering epithelium (Fig. 6), it is observed that the lymphoid infiltration has spread into the covering epithelium. It is determined that blood vessels are highly developed in the structure of such a polyp and there are relatively large postcapillary venules in their structure.

Among the polyps of the bladder, it was found that the stroma is rich in blood vessels. In this case, the size of the polyp is relatively large, the shape is uncertain, the surface is uneven, bumpy. The stroma of such polyps is rich in blood vessels, that is, the wall of various sizes is thin, the cavity is filled with blood, the diapedesis is filled with blood, and it is determined that the

inflammatory process with lymphoid infiltration has developed between the vessels (Fig. 7). It is determined that blood vessels mainly consist of capillaries and post-capillary venules, their walls are thin, only endothelium and pericytes are located in some of them. It is determined that the connective tissue between the blood vessels is strongly swollen, and diffuse lymphocytic and plasmacytic infiltrates are located in it. In this form of polyp, it is determined that the covering epithelium consists of densely located epitheliocytes, its cells are randomly arranged, and lymphoid cells have migrated in it.

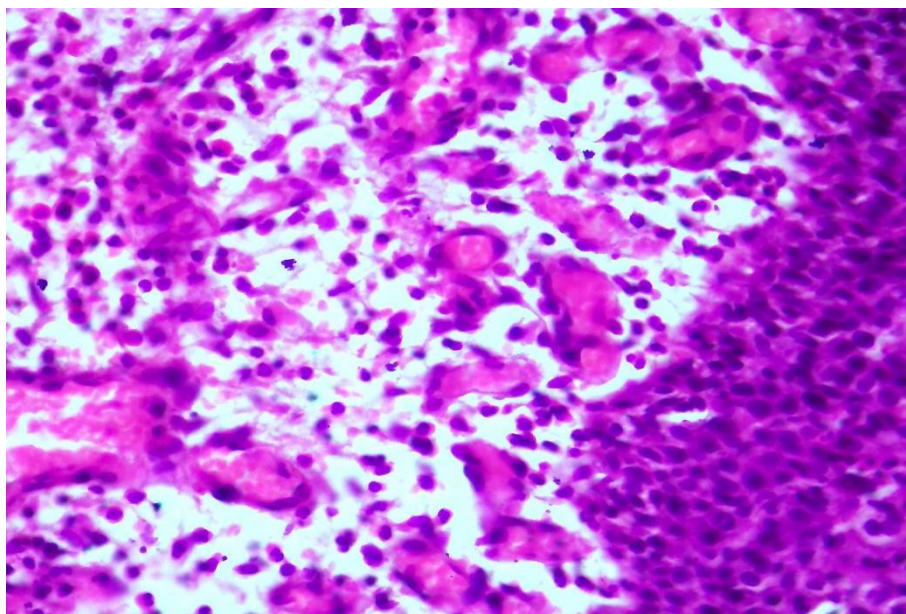


Figure 7. Bladder polyp, a large number of blood vessels have developed in its stroma, among which there is an inflammatory infiltrate. Paint: G-E. Magnification: 10×40.

During the formation of a bladder polyp, if acidic glycosaminoglycans accumulate a lot in the submucosal layer, that is, if the tissue is myxmatous, the polyp morphologically takes the form of a polyp with a swollen stroma and a myxmatous polyp. In such a polyp, it is determined that the stromal tissue is severely swollen, that is, due to the large accumulation of acidic glycosaminoglycans in the connective tissue, its hydrophilicity increases and it becomes swollen.

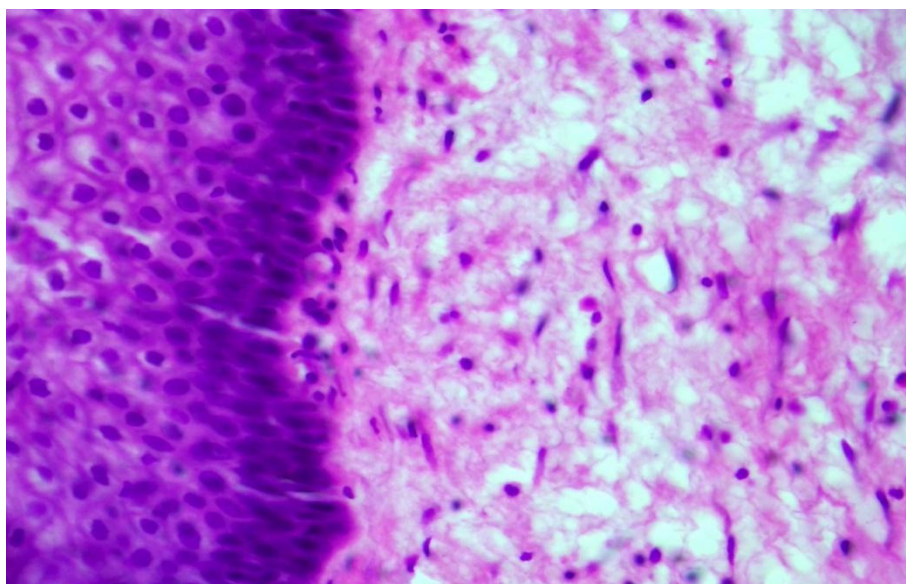


Figure 8. Bladder polyp, myxomatosis and swelling of the stroma. Paint: G-E. Magnification: 10×40.

As a result of the formation of an acidic medium in polyps of this form, the stroma becomes more acidic, and the epithelium that covers it develops dysregeneration. Morphologically, in the polyp stroma of this form, it is determined that the connective tissue is completely disorganized and myxomatized. When acidic mucopolysaccharides accumulate in the stroma of the bladder polyp and the tissue composition changes biochemically, that is, when the myxomatosis process develops, it was observed that the intermediate substance of the polyp stroma is stained blue when the acidic mucopolysaccharides in it are studied by histochemical staining with Alcian blue (Fig. 9). This condition indicates the accumulation of acidic products in the tissue.

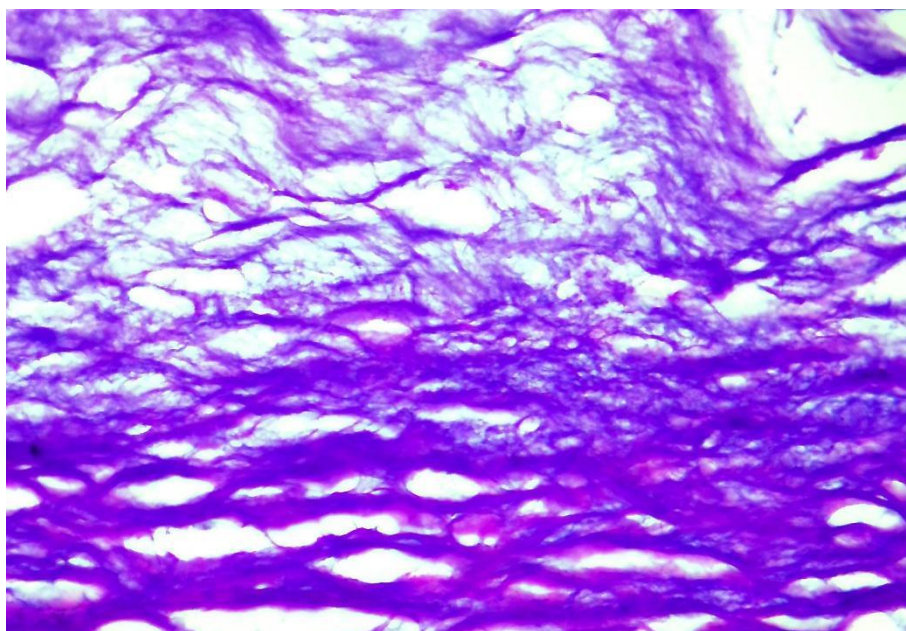


Figure 9. Bladder polyp, high accumulation of acidic glycosaminoglycans in its stroma. Paint: Altsian Blue. Magnification: 10×40.

CONCLUSION

Tumors develop in any tissue, including the bladder, due to the violation of the relationship between mesenchymal and epithelial tissues. If a polyp appears, its stroma can have a fibromatous, angiomatous, adenomatous, myxomatous, and sometimes lipomatous structure, depending on the type of tissue.

The fact that the morphogenesis of polyp development depends on the pathological changes in the submucosal connective tissue, a specific polyp appears as a result of the developed disregenerative processes in which tissue grows.

It is known that the consequence of any pathological process developed in the submucous connective tissue actually ends with sclerosing, therefore fibromatous polyp is more common among polyps. Angiomatous, lymphoproliferative, myxomatous polyps were also found due to the development of different tissues and processes in the stroma of the bladder polyp in separate cases.

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