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HISTOLOGICAL ASPECTS OF ANY HUMAN TUMORS IN SEQUENCE BENIGN / MALIGNANT

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***Key words**: human tumors, benign and malignant, histological study*

INTRODUCTION

Excessive proliferation of abnormal cells that look more or less the tissue that develops and end up acquiring biological autonomy. Synonym: neoplasm. Causes and predisposing factors - tumors have various causes: hereditary, chemical (smoking), physical (radiation of the sun), biological (action of a virus); they can associate with each other. It happens that a tumor have no known cause. Of tumor cells have lost sensitivity to message body normally prevents any excessive proliferation. In a healthy individual, all isolated tumor cells that appear are normally inhibited or destroyed by white blood cells of the immune system. So a true tumor can not grow unless its cells have become resistant to the immune system; there are two types of tumors - benign and malignant (cancerous).In the context of concerns in recent decades, due to remarkable advances in molecular medicine and genetics techniques and improved technical means of exploring imaging, endoscopic and histopathologic findings were more thorough knowledge in oncogenesis. Underlying diagnosis of malignant transformation of knowledge factors, prevention and treatment, with standard exploration, play an important role histo-pathological examination. In general, it is known that most cancers develop from adenomas tumor (glandular tumors) noninvasive precursor. Sequence adenoma - carcinoma is well characterized. The risk conferred by recognized adenomas and screening and removal surgery is a current practice in the prevention of this cancer.

Specific comments made by these assessments are made by biologists although histologically can offer some suggestions for further management of the lesions described.

MATERIALS AND METHODS

The biological material was represented by different etiologies tissue samples derived from benign (six adenomas) and malignant (two carcinomas), collected from patients diagnosed with cancer or suspected cancer, hospitalized in Bacau County Hospital Emergency in October - November 2013. configurations tumor was excised by endoscopy.

The diagnosis was established after histopathological examination.

Were taken into account in terms of morphology, corroborating macroscopic with microscopic aspects, six categories of adenomas and carcinomas category, as follows:

- pedunculated tubular adenoma of the sigmoid colon, low-grade dysplasia;
- tubulovilos pedicled sigmoid colon adenoma aspects of malignancy (carcinoma in situ);
- sessile tubular adenoma of the pancreas, low-grade dysplasia;
- sessile tubular adenoma of the pancreas, high-grade dysplasia;
- pedunculated tubular adenoma of the small intestine (jejunum) with invasion into the stomach, aspects of malignancy (carcinoma in situ);
- bazocelula carcinoma of salivary gland (parotid), aspects of malignancy (invasive carcinoma extended into the submucosa).
- melanoma benign (melanocytic nevus) with proliferative aspect.

Biopsy tissue fragments collected were processed and interpreted by the technique of serial sections in Pathology Bacau County Emergency Hospital.

The fragments of tissue fixed in 10% formalin for 24 hours were embedded in paraffin and sectioned (4-6 microns), stained with hematoxylin / eosin.

Evaluated morphology and microenvironment, the environment in which the neoplastic process develops, traced its progressive evolution in the sequence adenoma / carcinoma and histopathological aspects were pursued particular lesion.

RESULTS AND DISCUSSIONS

Colorectal cancer is the third leading cause of cancer in the world. Colon cancer is more common than rectal cancer, the report colon / rectum in industrialized countries is 2/1. In Europe are diagnosed in about 250,000 new cases justifying 9% of all malignancies.

Colorectal cancer is a disease with complex etiology in which genetic factors are involved, diet, smoking, inflammatory diseases of the colon (ulcerative colitis, Crohn's disease), obesity, radiation, etc.. An estimated one million people are diagnosed with colon cancer annually, and mortality is approximately 50%. Colon cancer can occur primary or malignancy of colon polyps or adenomas. Should be noted that although it is considered that over 80-90% of colorectal cancers are the result of this development the vast majority of adenomatous polyps do not develop malignant malignancy is often one of the possible ways of development of these lesions to be actively identified and removed to make prevention disease. More than 90% of carcinomas and adenocarcinomas of the colon epithelial cells originate in the colorectal mucosa. Rare forms include other types of cells (neuroendocrine, carcinomas, adenoscoamoase, undifferentiated). The key microscopic histological examination reveal the process of tumor invasion and reaction dysplasia or dysplastic (type of fibrous proliferation around the tumor cells, secondary invasion). Often invasion of adenocarcinoma showed the presence of necrosis characteristic lamina bride glands. This type of cancer is found in both males and females. Most of these cancers start from adenomuri or polyps. Approximately 80% of cases are sporadic, only 20% are inherited.

Colon adenoma (see Figures 1 and 2) is a benign tumor of glandular tumor cells form the lining of the gland-like structures were glands. In the colon adenoma grows into the lumen, forming an adenomatous polyp or polypoid adenoma. After the insertion of the polyp, pedunculated or sessile adenoma can be. Characterized adenomatous proliferation through a wide range of cell dysplasia (atypia or differentiation or less than normal epithelium), hyperchromatic nuclei with irregular cell, the (pseudo) layers, protruding nucleoli, mitosis, and large amounts of mucin. Architecture may be tubular or tubule-viloasa viloasa. Basal and mucous membranes are intact muscle.

In Figure 1, the section through the sigmoid colon adenoma shows a regular architecture with moderate nuclear and cytoplasmic abnormalities of low grade dysplasia. Muscle lining is integral, not invaded the submucosa. Dysplasia means a disruption in size, shape and organization of cells and tissues as a result of disturbance growth and differentiation due to irritative factors, inflammatory or hormonal. It is an abnormal process, but it still means malignancy. However, prior to dispalzia can often for months and years before development of cancer. Surgical removal of an adenoma is important for major risk of evolution to form malignant colon adenocarcinoma generating.

Figure 2 is a complex tissue architecture with cellular atypia and malignant appearances. Cells have different degrees of dysplasia, showing elongated nuclei with voluminous nucleoli. Observe the appearance of tumor tubes (deformed, with multi-layered epithelium with atypia and mitosis), separated by a conjunctive stroma reduced. Adenoma cell invasion by different degrees of dysplasia with features of malignancy indicates its evolution to malignant adenocarcinoma stage.

Although its frequency is lower than colonic or esophageal cancer, **pancreatic cancer** is rising trend in the number of cases diagnosed with this terrible disease, especially after age 50. Unfortunately, most become symptomatic when it is already too late. Because aggression (survival after diagnosis, even with treatment, is approximately 6 months, maximum one year in most cases) and resistance to treatment, mortality is very high. Pancreatic cancer is classified by the pancreas that affects: the area that produces digestive enzymes (exocrine) or one that produces insulin and other hormones (endocrine). The exocrine pancreas cancer, although there are several types of pancreatic cancer, 95% of cases are adenocarcinomas of the pancreas. Other less common types of cancer of the exocrine pancreas are adenosquamous carcinoma, squamous cell carcinoma, large cell carcinoma, acinar cell carcinoma, exocrine pancreas represents 95% of the pancreas, so it is not surprising that most cancers;

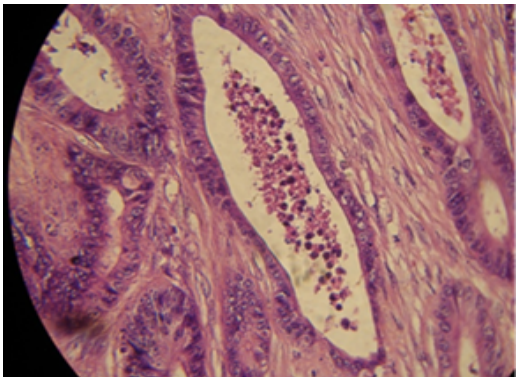

Fig.1. Cross-section of the sigmoid colon adenoma in a patient of 87 years

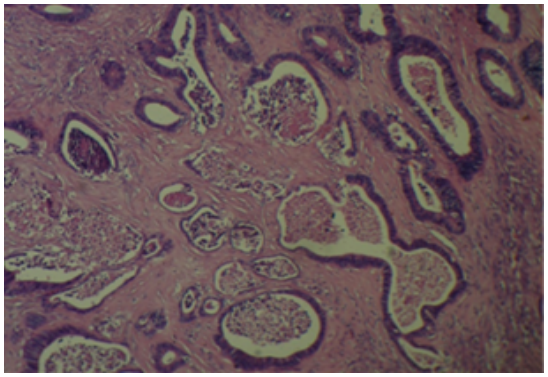

Figure 2. Section through the sigmoid colon adenoma in a patient 77 years

Cancers of the endocrine pancreas are rare and are named according to the type of hormone they produce cells that originate: insulinoma (insulin producing cells from) glucoganom (from glucagon-producing cells); somatostatinom (from somatostatin-producing cells); gastrinoma (gastrin-producing cells from) vipom (of vasoactive intestinal peptide-producing cells). Usually endocrine tumors are benign tumors. These are considered to be benign tumors of pancreatic cancer. However, they can grow more or secrete abnormal amounts of hormones, causing medical problems.

Figure 3 adenoma showing changes in cell and tissue architecture reduced (reduced dispalzie). The cells start to become irregular or hollow cuboids with large nuclei, and nucleoli stratified hyperchromatic. Some cells are dividing (mitosis). Basal membrane and muscle intact mucosa. In the Figure 4 altered tissue architecture (high-grade dysplasia), closely grouped glands have a rich content of polymorphonuclear neutrophils and eosinophils, nuclear stratification / cell occupies the entire height of the glandular epithelium, nuclear atypia and mitotic figures are present frequently. Above issues infiltrating extend beyond the basal membrane, the submucosa. The risk of this type of transform adenoma to a malignant carcinoma, is very high.

Benign tumors of the small intestine are rare clinical entity, which often remain asymptomatic. Even if 75% of the length and 90% of the digestive tract, the small intestine is home to relatively few benign and less than 2% of digestive malignancies. Benign small intestine tumors may be present as a single or multiple injury, such as epithelial or connective. Subtypes include adenomatous polyps, Brunner gland adenomas, villous polyps, leiomyomas, lipomas, hamartomas (in 10% of cases associated with Peutz-Jeghers syndrome) Prolab gastric polyps, hemangiomas, limfangioame. These tumors are characterized by slow growth and late symptoms appeared. Most often remain asymptomatic and are incidental findings at autopsy (2). They are distributed at duodenal, jejunal and ileal (in ascending order of incidence). In terms of location in relation to the intestinal lumen, increasing intraluminal may, infiltrative or sub. Development intraluminal tumors are most commonly complicated by obstruction or intussusception, and the subserosal with intestinal volvulus.

Several factors have been proposed to explain the low incidence of tumors in the gut and low rate of malignant transformation of them: short contact of the intestinal mucosa to carcinogens or some bacterial degradation products, liquid character of the intestinal chyme, which dilute irritants the alkaline pH. Among the benign tumors of the small intestine, most frequently encountered **adenomas**. Described three types of intestinal adenoma: *adenoma polyposis, Brunner gland adenoma* and *villous adenoma*. Single or multiple lesions, which can be both sessile and pedunculated how. From histologically are mucosal and submucosal intraluminal extensions with multiple acini developed around a central axis fibro-vascular. Show varying degrees of differentiation in a tumor cell to another or within the same tumor. From the histological point of view, Figure 5 shows a adenomatous epithelium of normal cell differentiation with hypercellularity and large quantities of mucin. The tumor has infiltrative nature, all structures invade the intestinal wall, reaching the stomach. Although it is unchanged malignant infiltrative nature and dividing cells represents a major risk for transition to stage malignant adenocarcinoma. Adenocarcinomas are more common primary cancer of the small intestine and are responsible for approximately 50% of malignant tumors. These neoplasms occur most often in the distal duodenum and proximal jejunum, which tend to ulcerate and cause bleeding and obstruction. Radiologic they can be confused with chronic duodenal ulcer disease or Crohn's disease, whether the patient has an evolving regional enteritis longer. Diagnosis is best done by endoscopy and biopsy under direct visualization. The treatment of choice is surgical resection.

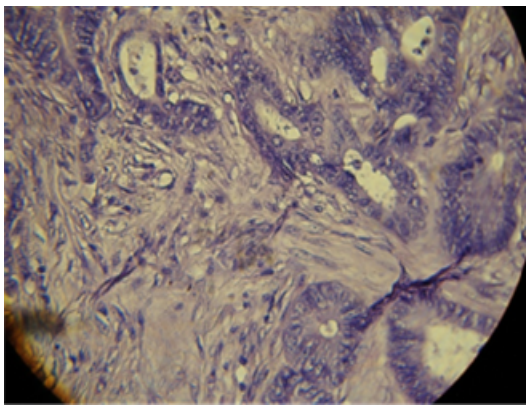

Fig. 3. Section by adenoma of the pancreas in a patient 63 years

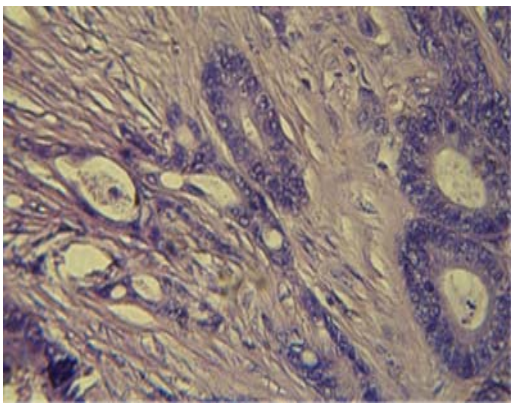

Fig. 4. Pancreas section through adenoma in a patient 69 years

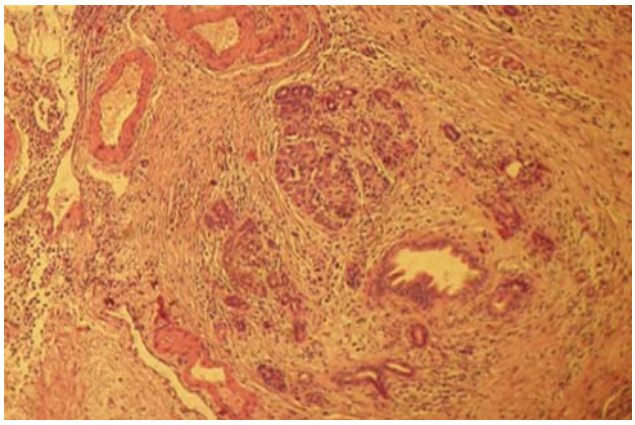

Fig. 5. Adenoma section through intestine (jejunum) with invasion into the stomach in a patient of 63 years.

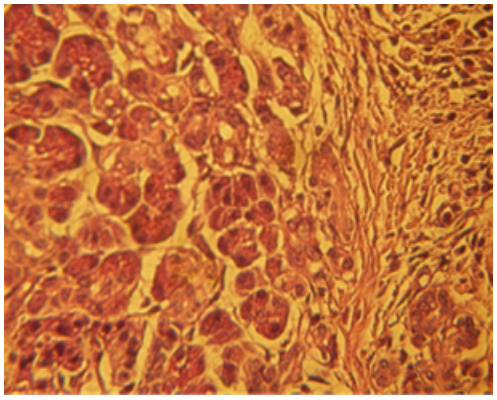

Fig.6. Section through the salivary gland basal cell carcinoma in a patient of 69 years.

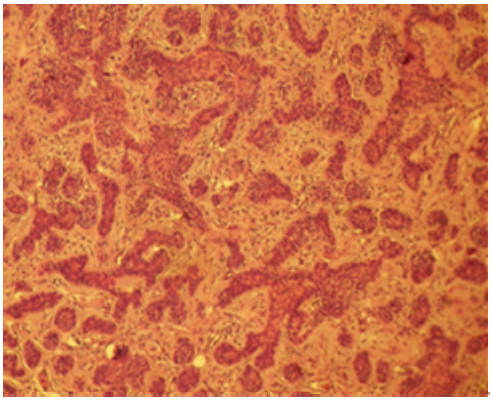

Fig.7. Section through the salivary gland basal cell carcinoma in a patient 61 years

Salivary gland tumors occur most frequently in the parotid and can be benign (the vast majority) or malignant (Fig. 6 and Fig. 7). The most common benign *pleomorphic adenoma* (mixed tumor) that could occur in any salivary gland, followed by *Warthin tumor* (adenolimfomul) appears only in the parotid

Pleomorphic adenoma is characterized by a proliferation accompanied by metaplasia condroidă adenomatous, or bone myxoid stroma. Warthin tumor (adenolimfomul/ cystadenoma lympho-matosum papiliferum) is characterized by the presence of lymphoid follicular structures included in proliferation adenomatous cystic appearance in lymphoid structures are bounded by a cylindrical epithelium cubo-type oncocitic

The most common malignancy is *adenoid cystic carcinoma*, characterized by epithelial proliferation cribriform appearance, slow growth pattern, increased destructive potential local and perineural dissemination. *Squamous cell carcinoma* can occur in salivary glands, with the well-differentiated forms (ortho-or parakeratosis pearls) to poorly differentiated forms (nekeratinizant).

Acinar cell carcinoma is a rare tumor, with the formation of tubular structures, cubo-cell cylindrical, pale, finely granular, with small nuclei, placed apical (reverse polarity). Other tumors of the salivary glands are: *muco-epidermoid carcinoma*, *adenocarcinoma, basal cell carcinoma*, *pleomorphic carcinoma, carcinoma ex pleomorphic adenoma*. About 75% of malignant tumors of the salivary gland, parotid from 10% of the submaxillary glands, and 12% in the minor salivary glands. A third of malignant salivary derived from acinar epithelium (adenocarcinomas), another third of the canalicular (epidermoid carcinoma), the rest are very undifferentiated lesions (anaplastic tumors or malignant mixed tumor). Acinar cell tumors are low-grade malignancy and a slow. Occur at any age, especially in women. Production recurrence and metastasis for a period of 20-30 years. Mucoepidermoid carcinoma with low malignancy can be cured by excision. It has a slow growth. Secrete mucin which may cause inflammatory phenomena. Mucoepidermoid carcinoma with high malignancy is very rare, but very aggressive, rapidly giving lymphatic and distant metastases. Other

evolutionary aggressive tumors are adenocarcinoma, poorly differentiated carcinoma, anaplastic carcinoma, squamous cell carcinoma, malignant mixed tumor, carcinoma adenochistic. Another classification is: epidermoid carcinomas, adenocarcinomas and malignant mixed tumors.

Epidermoid carcinomas are glandular and canalicular and appears as diffuse or nodular infiltration. Rapidly evolving and give lung metastases, liver and brain. The most common in this group are those mucoepidermoid has been described by Stewart et al.77 1945 consisting of epidermoid cells, intermediate and mucosecretatnte. They can be well differentiated or undifferentiated, in general, well differentiated tumors predominate mucus-secreting cells, and in the undifferentiated epidermoid and intermediate cells predominate.

Mucoepidermoid carcinomas originate in the ductal epithelium, and may undergo squamous metaplasia. Epidermoid squamous cell carcinoma of the salivary glands have developed malignancy grade higher than those developed in the skin and oral cavity.

Adenocarcinomas like adenoid cystic carcinoma (cilindrom). Histologically give positive reaction with mucicarmina, which indicates the presence of mucin. Cystic cavities also contain mucus, and mucohialin hyaline material. These slow-growing tumors.

Acinar cell adenocarcinomas are relatively rare tumors with low-grade malignancy, which occur mainly in the parotid gland, from the salivary gland acinar cells. Besides these there are very malignant anaplastic forms with invasiveness and metastasis.

Malignant mixed tumors always occur in benign mixed tumors malignancy after a long evolution (20-30 years). Volume are larger than benign ones are meeting older age is associated with facial paralysis. Facial paralysis occurs mainly in tumors with high malignancy as adenocarcinomas and squamous carcinomas. Mucoepidermoid carcinoma low grade malignancy, as adenoid cystic carcinoma does not affect facial nerve than in advanced stages. Fixing gland deep tissues and appearance palpable lymph circle indicates a high degree of malignancy. Among benign mixed tumors are the only ones that can become malignant. Histologically, malignant tumors appear as adenocarcinomas, squamous cell carcinomas, or spindle cells. Sometimes of salivary gland carcinomas can occur so called “chronic“, especially adenoid carcinoma, cystic metastases can give up to 10-20 years after treatment of the primary tumor. Metastases generally a slow, stationary for years. Muco-epidermoid carcinomas even with slow growth, have an accented character of local invasion, perineural especially. Frequently recur after excision. Squamous cell carcinomas and salivary gland adenocarcinomas have a poor prognosis with high mortality.

Malignant tumors infiltrating the parotid gland and the facial nerve. Sometimes invade the skin, muscles and bone neighbors. Submaxillary gland neoplasms are attached to the mandible, invading muscle milohioidian and tongue, sometimes hypoglossal nerve.

In Figure 6 the structure is characteristic of squamous cell type of tumor is malignant acinoase. This type of tumor is reduced malignancy with slow progress. It is noted lobules composed of round cells, serous, with abundant cytoplasm arranged in nests. Cells resembling serous acinar cells of the parotid gland, but some have transparent cytoplasm.

Microscopic in Figure 7 observe that the tumor is bazaloide epithelial elements forming cylindrical structures. The general architecture is cribriform type with the classic look of “Swiss cheese” with a mucinous substance, basophilic filling the cystic spaces (carcinoma adenochistic). Characteristic of this type of tumor is the tendency to perineural invasion. Extension explains the difficulty of eradicating carcinoma perinervoasă adenoidchistic the expense of wider excision.

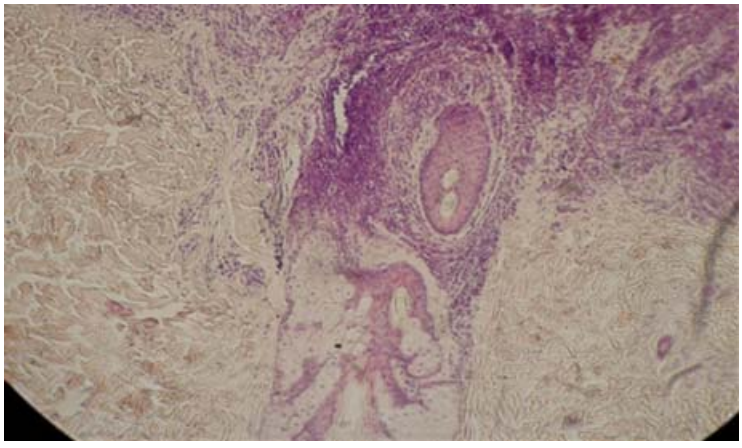

Fig.8. Section of a melanocytic nevus (benign tumor) in a patient of 24 years.

A mole or **melanocytic nevus** (Latin = naevus birthmark that) is a benign tumor or hamartoma (malformation growth) consisting of melanocytes, the pigment-producing cells that form the skin (Fig. 8). The risk of melanoma increases nevus transformation in people who have freckles on the skin-colored, female sex (melanoma is more common in women than in men) or frequent exposure to the sun.

Melanoma is the malignant tumor arising from melanocytes (cells responsible for skin pigmentation); has a classification and designation disputable: some people use the term to refer exclusively melanoma a malignant tumor, while others make a distinction between malignant melanoma and *benign melanoma* (or *nevus*). Malignant melanoma most often appears on the skin and mucous membranes, as a subordinate in the eye.

Congenital melanocytic nevi may be or, most often acquired. Appearance may vary. Can be flat, curved, smooth or rough, polyploids. Most times they browning, more or less intense, but can have skin color or blue color. Is important to distinguish in histologically, between melanocytic nevus and malignant melanoma. Symmetrical shapes, regular borders, colored uniform small cell size (diameter <6 mm) defined melanocytic nevus, which is a benign tumor. In this case, treatment is not necessary, Change the color, shape or size, bleeding, itching or other symptoms may signal a malignant transformation of nevus. If changes are suspicious nevus, excision is required.

Figure 8 shows histology is characterized by melanocytes polygonal group, multi arranged in nesting embedded in a dense fibrous stroma with abundant melanin pigment. Melanoma cells with large nucleus and nucleoli visible, proliferate, invading hypodermis. All these aspects show the tumor transition from benign to malignant state.

CONCLUSIONS

The transformation of a normal cell into a cancerous one is done gradually in several stages over several years. With the passage of each cell stage change becoming more and becomes less sensitive to the normal control mechanism of the body.

The tumors analyzed in this paper, we can say that:

- Most of the colon cancers, encountered in both men and women starting to form benign, adenoma or polyps.
- Exocrine pancreatic cancer, although aggressive, rapidly evolving, is difficult to detect in its early form, it becomes frequently asymptomatic, screening is usually too late; endocrine pancreas benign forms are quite serious as diagnostic excess hormone they produce.
- Malignant tumors of the small intestine - adenocarcinoma - can originate from benign adenomas, which by their nature can present a higher risk infiltration of malignant transformation.
- Benign salivary gland tumors may pass by their invasive malignancies and cell metaplasia.
- Melanocytic nevus, a benign tumor on the skin and mucous especially, have a high risk of transformation especially in women; suspect any change requires excision.

Identification of the complex mechanisms that govern the relationship between benign form malignant tumor progression remains an open question. The certainty is a significant change of the cells and the possibility that tissue invasion during the neoplastic transformation.

ABSTRACT

In this paper we have proposed evaluation of histological preparations made from malignant and benign tumors in the affected organs and neoplastic adenomatous lesions correlate morphology with particular aspects of their environment inflammatory process generated during the course of adenoma-carcinoma sequence.

REFERENCES

1. FARAH M.C., JAFRI S.Z., SCHWAB R.E., MEZWA D.G., FRANCIS I.R., NOUJAIM S., KIM C. , 1987 - Duodenal neoplasms: Role of CT. Radiology, 162:839;
2. PEETZ M.E., MOSELEY H.S. , 1989 - Brunner's gland hyperplasia. Am. Surg., 55:474;
3. PEISON B., BENISCH B., 1982 - Brunner's gland adenoma of the duodenal bulb. Am. J. Gastroenterol., 77:276;
4. PLESA C., 2001 - Tumorile intestinului subtire. În "Tratat de Patologie Chirurgicală" sub redactia lui N. Angelescu, vol. II, Ed. Medicală (Bucuresti), pag. 1578-1592;
5. REMINE W.H., BROWN P.W. JR, GOMES M.M., HARRISON E.G. JR., 1970 - Polypoid hamartomas of Brunner's glands. Report of six surgical cases. Arch. Surg., 100:313;
6. RIVER L., SILVERSTEIN J., TOPE JW. , 1956 - Benign neoplasms of the small intestine; a critical comprehensive review with reports of 20 new cases. Surg. Gynecol. Obstet., 102:1.

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