References

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Anal Precancers: a Challenge for Surgeons and Pathologists

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Background: Precancerous changes in the anal area are diagnosed with increasing frequency in the Western world and represent a challenge for surgeons and pathologists. Methods: Review of literature based on Medline-search dated June 1994 and own literature register comprising 3100 articles on anal anatomy and pathology and related subjects. Results: Precancerous changes are often part of a multietnic anogenital neoplasia and considerable evidence links them to venereal diseases. Symptoms are vague but risk groups can be identified. A rather conservative surgical approach seems justified, but close follow-up is necessary. Conclusions: A close collaboration between clinicians and pathologists is mandatory in treating precancerous changes. A recommendable procedure for this is outlined.

Anal Präkanzerosen: eine Herausforderung für Chirurgen und Pathologen


Introduction

Precancerous changes in the anal mucosa and perianal skin were for many years regarded as rare and incidental findings and their significance was unclear. In the last decades our knowledge has considerably increased with regard to their relation to venereal disease and especially infection with human papillomavirus (HPV), and to their fairly common occurrence in certain risk groups. Several different types have been described, each more

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Normal anal canal mucosa

The anal canal is now defined as extending from the pelvic floor to the anal opening and has an average length of about 4 cm (38). A little below the middle is the most important landmark, the dentate line (DL), composed of the anal valves and sinuses and the bases of the anal columns. Occasionally, the anal canal has been defined as extending from the DL to the anus, but this is most inconvenient, as many of the characteristic anal canal tumours then would have their origin above the canal. The area below the DL is termed the anal margin.

The surface relief is in the living subject characterized by 3 longitudinal "cushions" composed of sponge-like vascular tissue, from which hemorrhoids may develop (41). These are necessary for a complete closure of the anal canal (35), but are rather inconspicuous in opened and formalin fixed specimens. The DL has a more variable appearance than described in anatomical textbooks and often presents as an uneven row of anal papillae and sinuses, and the anal columns are also less conspicuous (Fig. 1).

The anal canal mucosa is histologically divided into 3 zones (22) (Fig. 2). The upper third is nearly identical to the rectal mucosa above and is therefore called the colorectal zone (of anal canal). The middle zone is a highly irregular area, extending from the DL and on average 1 cm upwards. 14 different names have been used for this area (22), but it is now termed the anal transition(al) zone (ATZ) (14, 15). The dominating epithelium is here the so-called ATZ-epithelium, which is multilayered but with some tendency to mucus production (fig. 3). In addition, scattered islands of squamous epithelium and colorectal crypts are often present (22). The area below the DL is covered by unkeratinized squamous epithelium and is therefore called the squamous zone. It corresponds to the macroscopic term anal margin. The perianal skin with keratinized epithelium and skin appendages starts at the anal opening. All 3 zones, as well as the perianal skin, may give rise to precancerous changes and tumours.

Glands below the epithelium are found in 2 locations. The anal (intramuscular) glands have their openings at or just above the DL and may extend into the internal sphincter. The perianal apocrine glands are situated beneath the perianal skin. Malignant tumours and precursors from these structures are extremely uncommon.

Definitions and terminology

A precancer is a condition which tends eventually to become malignant, and the final diagnosis is always histological. Such conditions are well-known in transitional zones as the esophagogastric junction and the cervix uteri. In the anal canal precancers have been described for the squamous variants of anal carcinoma, for adenocarcinomas and for malignant melanoma, but not for endocrine tumours. This article will focus on the first type.

Precancers for squamous cell carcinoma

Precancers for the variants of squamous carcinoma, including large cell carcinoma, basaloid carcinoma and the rare carcinoma with mucinous microcysts, has a histology similar or identical to the corresponding precancers in the cervix (fig. 4). In this location, such changes have formerly been named dysplasia and carcinoma in situ, but are now often referred to as cervical intraepithelial neoplasia (CIN). The term anal canal intraepithelial neoplasia (ACIN) was therefore introduced in 1986 (19). Nowadays many authors simply refer to anal intraepithelial neoplasia (AIN).

Grading from I to III (mild to severe dysplasia/carcinoma in situ) should always be included in a description, as AIN III seems to be the grade which is followed by recurrences or invasion. The term atypia can be used for slight epithelial changes that are not clearly precancerous.

Precancers in the perianal skin can be called perianal skin intraepithelial neoplasia (PSIN) (19), but are more often named according to the terminology in cutaneous pathology, most being...