



# Sexually Transmitted Infection Lesions Found During Colonoscopies

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## Abstract

**Introduction:** Anal examination and Videoanoscopy (VA) are rarely performed during colonoscopies. In recent years, there has been a considerable increase in sexually transmitted anal and rectal lesions and infections, but these conditions are not noticed or reported during routine colonoscopy.

**Objective:** The aim of this study is to raise awareness of fortuitous findings of lesions and Sexually Transmitted Infections (STI) in colonoscopy exams and demonstrate that anal examination and VA provide important information and should be routinely performed.

**Methods:** A descriptive retrospective study was carried out in 16132 patients screened by colonoscopy and VA, which were performed between 2006 and 2018. Among numerous other findings, the presence of anal condylomata and sexually transmitted dermatitis was observed. The percentages of each finding were calculated and subdivided into age groups every ten years, separately by sex and age groups.

**Results:** Of the 16,132 colonoscopies performed, 26 cases of condyloma (0.16%) and 50 cases of STI-suspected dermatitis (0.33%) were fortuitous.

**Conclusion:** Performing anal examination and videoanoscopy systematically in all routine colonoscopies allowed the identification of numerous anal conditions, including several fortuitous cases of STIs. The study proposes that anal examination and VA should be performed in all routine colonoscopies and, in suspected cases, complementary tests for STIs.

**Keywords:** Proctoscopy; Anal canal; Colonoscopy; IST

## Introduction

According to the health portal of the Ministry of Health [1], at least 10,300,000 Brazilians have had at least one STI, 65% men and 35% women. Six STIs are on the rise in Brazil: HIV, syphilis, gonorrhea, genital herpes, hepatitis (B and C) and HPV (condylomatosis). HPV is the most transmissible STI and the cumulative incidence throughout life is 79% for the sexually active population [2]. Transmission is greater from women to men and condom protection is not complete. In 30% of the cases, the infections are associated and for this reason routine research should be carried out, including the six mentioned above and also, if suspected, chlamydia, donovanosis and lymphogranuloma venereum.

According to the Epidemiological Bulletin of the Secretariat for Health Surveillance<sup>1</sup>, there has been an increase in the incidence of syphilis of about 6000 times in the last 5 years, mainly in adolescents and young adults, with a registered increase of 40% in the age group of 14 to 19 years. After 10 to 90 days of sexual intercourse, primary lesions such as fissures, hard ulcers may appear (Figure 1), without much pain (hard or primary chancre stage), requiring biopsy with dark field research in primary and secondary lesions, in addition to the serological tests. Lesions disappear whether treated or not. After about 2 to 3 months, syphilitic secondaryity occurs (Figure 2).

Sexually transmitted dermatitis has an unknown real incidence and most of it is not very symptomatic. It may present with itching, burning, wet anus, tenesmus, evacuation urgency or bleeding, with erythema, edema, secretion, erosions and fissures. On colonoscopy there is a moderate rectitis in the distal 10 cm, with erosions, small amount of fibrin, without ulcer. Multiple pathogens are often involved, particularly in patients with Acquired Immunodeficiency Syndrome (AIDS), including Human Papillomavirus (HPV), type II herpes, chlamydia (Chlamydia trachomatis), gonorrhea, Cytomegalovirus (CMV) (associated with atypical fissure), moniliasis, mycoplasma, ureaplasma and syphilis[3] (Figure 3).

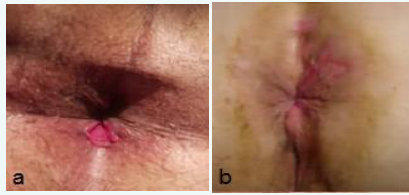
Anal Intraepithelial Neoplasia (AIN) is the precursor lesion of anal squamous cell carcinoma [4,5] (Figure 4). NIA the incidence is low in the general population, but it competes with colon cancer in high-risk groups, particularly those with HIV infection and men who have sex with men [6]. HIV individuals are 28 times

**Submitted:** 21 November, 2022 | **Accepted:** 30 November, 2022 | **Published:** 02 December, 2022

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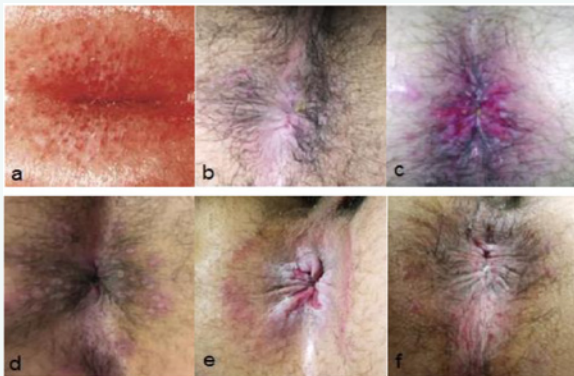
**Citation:** Gomes A, Sampaio Netto JB, de Oliveira Ayres R, da Silva Rodrigues JM, Borghesi RA (2022) Sexually Transmitted Infection Lesions Found During Colonoscopies. SM J Infect Dis 5: 6.



**Figure 1** Primary syphilitic lesions: a- fissure lesion; b- perianal dermatitis.



**Figure 2** Secondary syphilitic lesions (flat condyloma).



**Figure 3** Sexually transmitted perianal infections: a- perianal Herpes type II dermatitis; b- perianal chlamydial dermatitis; c&d- Perianal herpes; e- Herpes, Mycoplasma and Gonorrhoea; f- Mycoplasma and Gonorrhoea.

more likely to have anal cancer [6,7]. Inkster, [8] published a study in which 25 cases of intraepithelial neoplasia of the anal canal were detected in routine colonoscopies in the period from 2008 to 2011.

Thus, screening for AIN and early anal cancer and treatment of these lesions in specialized centers should be considered in high-risk populations [9]. Screening is performed using anal swab cytology and high-resolution anoscopy after application of 3% acetic acid and Lugol applied to the anal canal, with HPV-infected cells seen as white lesions [2,10]. There is a clear benefit to early diagnosis. Treatment consists of topical or ablative therapies [11]. Vaccination against human papillomavirus appears to reduce the rate of AIN and possibly anal cancer [2].

## Methods

This is a retrospective descriptive study of patients who were referred as an outpatient for routine colonoscopy and systematically evaluated including anal examination by videoanoscopy and the findings statistically evaluated. All cases in this study were performed by a single physician (Alexandre Gomes), with specialization in endoscopy and coloproctology, in a private clinic with the trade name of Endoclinic, located in the city of Sorocaba - SP, Brazil.

## Inclusion criteria

The research patients were referred for colonoscopy and systematically submitted to videoanoscopy and videocolonoscopy. An admission form was routinely filled in with patient data, the reason for requesting the examination, history of injuries or previous surgeries, current complaints, including anal symptoms such as pain on defecation, bleeding, difficulty defecating, hemorrhoidal prolapse, incontinence, pruritus.

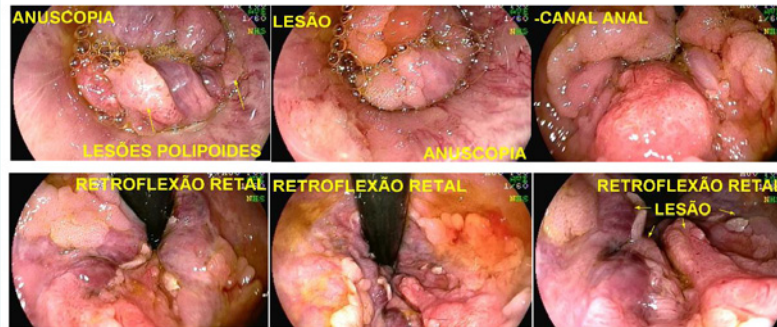
All patients included in the study underwent colon preparation 41. The standardized colon preparation was performed with a liquid diet without fiber two days before the exam, bisacodyl 10 mg the night before, 750 mL of 10% mannitol four hours before the exam. The criterion of colon preparation conditions used was based on the Aronchick scale [12,13]. Although there are other classifications for colon preparation, such as the Boston classification [14], which is currently more accepted because it specifies the quality of the preparation in each region of the colon, the Aronchick scale was adopted due to its simplicity of application in relation to the rectum, checking whether the preparation is suitable for the anal examination or not.

## Exclusion Criteria

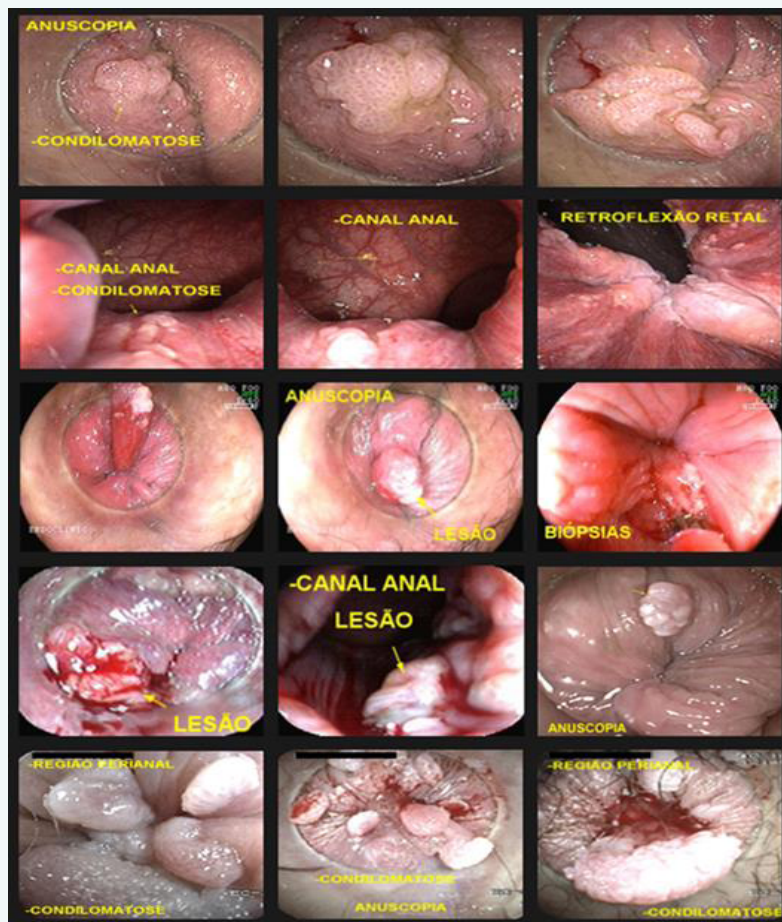
Of the 16185 evaluated colonoscopies, 53 exams were eliminated, cases that, for performe reasons (25 cases with perineal rectum amputation), the anal exam was not erforme dor is not included in the report. 16132 exams remained. Video anoscopy exams were not performed if the preparation of the rectum was classified as inadequate. Inadequate colon preparation is defined by the Aronchick scale those who have solid stools in the rectum. In the Aronchick scale it was found: Excellent: small amount of clear liquid with clearly visualized mucosa in more than 95% of the path; Good: small amount of cloudy liquid without stool interfering with the exam and more than 90% of the mucosa visualized; Reasonable: moderate amount of feces that can be aspirated allowing adequate evaluation of the colon and the mucosa can be visualized in more than 90%; Poor: presence of cloudy liquid and stools preventing na adequate examination, but the examination was completed and visualization of the mucosa was possible in less than 90%; Inadequate: the preparation has to be repeated, the large amount of feces prevents the examination.

## Technical Aspects

The research patients underwent anal examination, with inspection of the perianal region, touch (digital anal examination),



**Figure 4** Anal intraepithelial neoplasia: squamous epithelium with exophytic papillomatosis and high-grade squamous intraepithelial neoplasia with foci of koilocytosis (HPV).



**Figure 5** Verrucous lesions in the anal canal. AP: HPV koilocytosis.

videoanoscopy and videocolonoscopy. All examinations were performed with patients in the supine or left lateral position, with non-invasive monitoring of heart rate and pulse oximetry throughout the procedure and use of supplemental oxygen if necessary. Intravenous medication for sedation with midazolam (0.05 mg/kg - 0.1 mg/kg), fentanyl (0.5 mcg/kg - 1 mcg/kg) and propofol (10 mg titration doses for maintenance of sedation as needed).

The device used was a Pentax® (Pentax Corporation, Tokyo, Japan) or Fujinon® (Fujifilm, Tokyo, Japan) videocolonoscope and a disposable, transparent plastic anoscope (Plastic Way® or Kolplast®). X According to the AMB chart of medical fees, anoscopy is part of colonoscopy.

The patients were submitted to an anal examination and then the colonoscope was introduced into the rectum with aspiration



of the liquid content. A careful frontal view assessment of the rectum, pectineal line and anal canal was performed, followed by removal of the device. Then, the anoscope was introduced, the anal canal and the perianal region were evaluated with the aid of the videocolonoscope, and the results were recorded. In these procedures, a visualization is performed with identification and photographic documentation of polyps, the internal hemorrhoidal plexus, the pectineal line, the anal canal and the perianal region. After this evaluation, the colonoscopy examination was performed.

In cases of suspected STI or condyloma lesions, biopsies were performed and material was sent for anatomopathological study, collection of material for culture or PCR, in addition to serological tests for HIV, syphilis, herpes, hepatitis B and C.

### Data Storage and Collection

The exam reports and the images obtained were recorded and saved in a database (OCRAM® system, SP). The data mined for the composition of the research were extracted from the MySQL Community relational database, version 5.5.40, which is the standard database used by the computer program, said software, entitled OCRAM Captura de Imagens Médicas e Reports. This system was developed using the Java programming language, and it was used to capture the photos of the videoanoscopy exams and compose the respective reports during the period from October 25, 2006 to September 10, 2018. video anoscopy typed by the executing physician from OCRAM software are structured in XML format (Extensible Markup Language), and follow an XML-Schema according to W3C (World Wide Web Consortium) norms, resulting in a well-formed, valid and standardized structure of the video anoscopy reports in XML, allowing the mining of terms referring to illnesses to be carried out in a reliable way through the declarative research language SQL (Structured Query Language) together with an XML DOM (Document Object Model) parser.

### Statistical analysis

Data were described in tables and expressed as mean and maximum and minimum values: age, sex, diagnosis. Categorical variables were expressed in numbers and percentages. The

findings of the videoanoscopy examination were also expressed in graphs according to the distribution by gender and age group.

### Results

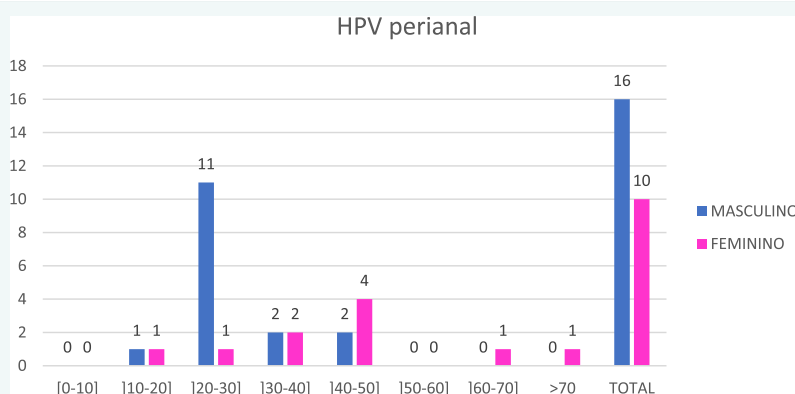
There were 26 cases of condylomatous lesions (0.16%). There was a predominance of males with 16 cases (61.53%) and in the female group 10 cases (38.46%) (Graph 1). One of the cases with anal intraepithelial neoplasia. We identified 50 cases (0.31%) of perianal dermatitis suspicious for STIs that were referred for specialized evaluation. Male with 54% and the female group with 46% of cases (Graph 2). After the tests, two cases of primary syphilis, one case of perianal herpetic dermatitis, one case of gonococcus and one case of anorectal chlamydia were confirmed. The remaining 45 cases with negative tests were treated as nonspecific perianal dermatitis.

### Discussion

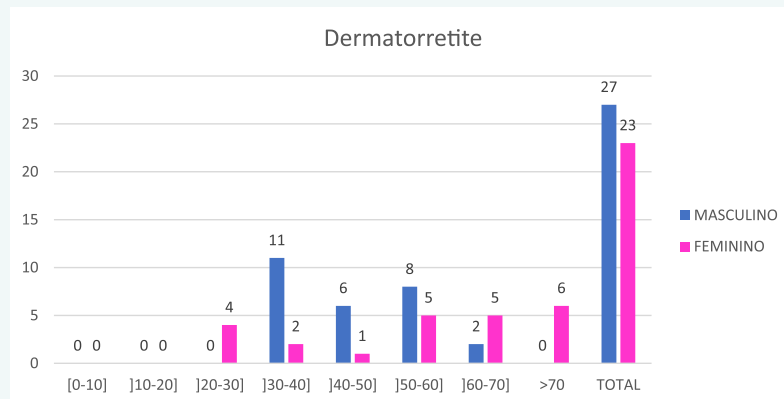
We found 26 cases of verrucous lesions with AP showing koilocytosis (condylomatous lesion - HPV). There was a predominance of males (61.53%) over females (38.46%). Fragments for analysis were collected with biopsy tweezers or with application of local anesthetic and removed with surgical scissors. In some cases, the anal canal and inferior rectum lesions were removed and cauterized with hot biopsy forceps coupled to thermocautery.

Anal intraepithelial neoplasia is a precursor of squamous cell carcinoma and is directly related to the viral incidence of HIV and HPV [7]. Diagnosis of the precursor lesion and anal cancer requires adequate examination of the region and association with anal swab cytology, high-resolution anoscopy and serological tests. The verrucous lesions seen in the anal examination are biopsied (Figure 5) and in the anatomopathological examination, foci of koilocytosis are found, which favors the etiology by HPV, recommending the search for human papilloma virus using the in situ hybridization method.

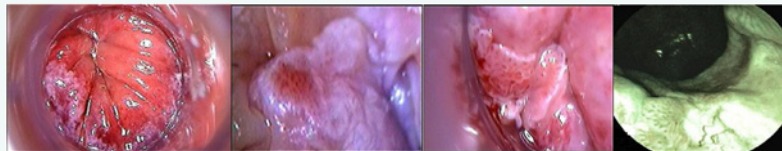
Anal HPV has a high rate of recurrence, around 22% to 70% in one year and a risk of transformation to cancer from 9% to 13% [9]. Screening is performed using anal swab cytology and high-resolution anoscopy after application of 3% acetic acid and Lugol applied to the anal canal, with the HPV-infected cells seen



**Graph 1** Distribution of patients with perianal condylomatosis divided by sex and age groups.



**Graph 2** Distribution of patients with dermatitis divided by sex and age groups.



**Figure 6** High-grade intraepithelial neoplasia identified using acetic acid, image magnification and FICE.

as white lesions [5,10]. There is a clear benefit to early diagnosis.

Fifty cases (0.31%) of dermatitis suspected for STIs were identified who underwent complementary tests that included anatomopathological examination, secretion culture, scraping with a brush for PCR and serological tests for HIV, syphilis, herpes, hepatitis B and C. Gender male with 54% and the female group with 46% of cases. Of these cases, after examinations, two cases were confirmed with primary syphilis in the lower rectum and anal canal, one case of perianal herpetic dermatitis, one case of gonococcal anoritis and one case of anorectal chlamydia. Six other HIV-positive patients also had other nonspecific anal lesions, but four of them also had perianal condylomatosis.

However, most cases had an irritant or allergic cause (45 patients - 0.28%), caused by mucus or fecal residue and aggravated by the use of chemical products. Usually dermatitis is nonspecific and its treatment is with topical medications and hygienic and dietary behavior. Contact dermatitis is the basic mechanism that provides the most common dermatological picture of an inflammatory reaction in the anal and perianal region. The most frequent causes of primary irritation contact dermatitis are the use of toilet paper, local trauma during hygiene, perfume, cologne, soap, soap, deodorant, talc, antimycotic ointment, spicy foods, liquid stools, abusive use of laxatives, allergenic underwear. The primary perianal dermatological diseases that can be found are: contact dermatitis, seborrheic dermatitis, lichen simplex chronicus, intertrigo, psoriasis, vitiligo, acanthosis nigrans, Darier's disease, lichen planus, pemphigus, acne vulgaris, hidradenitis suppurativa, histiocytosis, craurosis, mycoses (candidiasis, tinea cruralis, blastomycosis, actinomycosis, sporotrichosis), parasites (oxyuriasis, scabies,

amoebiasis), bacterial infections (syphilis, donovanosis, chancroid, lymphogranuloma, tuberculosis), viral infections (herpes simplex, molluscum contagiosum), gynecological diseases (leukorrhea due to trichomoniasis or gonococciasis), systemic diseases (diabetes, Behçet's disease, Hodgkin's disease), actinic lesions or proctological diseases (hemorrhoidal prolapse, perianal fistula, perianal Crohn's disease) [3,15-18].

Although the vast majority of cases are related to nonspecific dermatitis, it is important to bear in mind the possibility of STIs and complement the evaluation with an anal swab or brush to search for chlamydia and gonorrhoea using the hybrid capture technique or PCR and scraping of ulcerated lesions for research of syphilis and lymphogranuloma venereum [9]. In suspected cases, ask for serology for HIV, syphilis, herpes, hepatitis B and C.

### Anoscopy with Magnification

It is important in the follow-up of these patients with HPV to perform an anal scraping with a brush in the same way as the gynecological Papanicolaou test [2]. If there is an abnormal result, high-resolution anoscopy is indicated, which is an examination performed with a colposcope to evaluate the perianal region, the anal canal and the distal portion of the lower rectum. An evaluation is performed without dyes at first, and then 3% to 5% acetic acid is used to identify positive acetowhite lesions of the coarse speckled or mosaic type, which can mean AIN.

After acetic acid, lugol is used, which helps to distinguish high-grade squamous intraepithelial lesions from low-grade lesions, as well as to define their margins [10]. This exam is done by few specialized centers and has a very long learning curve. Although this evaluation using the colposcope has become standard, it



can be performed with magnification colonoscopy, using the same dyes, acetic acid and lugol, or even using the features of colonoscopes that have magnification with chromoscopy with filters of light (Narrow Band Imaging), taking care to expand the evaluation to the perianal region [19]. A work by Oette, et al. [20] demonstrated that chromoendoscopy performed by videoanoscopy is equally safe and effective in diagnosing AIN.

Thus, videoanoscopy performed using a colonoscope with magnification and the use of technologies with light filters (NBI, FICE) associated with the use of dyes such as acetic acid and lugol can effectively replace the high-resolution videoanoscopy traditionally performed using a colposcope in the evaluation and follow-up of neoplastic and pre-neoplastic lesions of anal condylomatosis (figure 6). The evaluation of the perianal region and the anal canal allows the diagnosis, treatment and follow-up of condylomatosis and pre-malignant lesions related to HPV.

Treatment of anal HPV is based on three principles: a) reduction of local viral load with chemical ablation (podophyllin 25%) and then thermal ablation of residual lesions; b) increase systemic immunity with tetravalent vaccine62; c) increase local immunity with an immunomodulator (imiquimod three times a week for 16 weeks) [11].

## Conclusion

The occurrence of STIs as a fortuitous finding in routine colonoscopies is uncommon, but the colonoscopist needs to be aware of the diagnosis of these lesions. Anal examination and videoanoscopy systematically performed during routine colonoscopies in a significant number of cases found a large number of anal disorders and among them some cases of lesions and sexually transmitted infections. The work can help in understanding the importance of evaluating the anal canal during the colonoscopy exam. As anal examination is not performed in most colonoscopies, performing videoanoscopy expands the diagnosis of anal diseases and adds important information.

## References

1. Secretaria de Vigilância em Saúde Mds. Sífilis. Boletim Epidemiológico. 2017; 1-42.
2. Thiago Da Silveira Manzione, Sidney Roberto Nadal, Edenilson Eduardo Calore, Luís Roberto Manzione Nadal, Carmen Ruth Manzione. Controle local da infecção perianal pelo papilomavírus humano após erradicação dos condilomas acuminados. . In: Nadal SR CE, Nadal LRM, Manzione CR, editor. Rev Col Bras Cir. 2014; 41(2): 087-091.
3. Mauro Romero Leal Passos. Atlas of Sexually Transmitted Diseases. Syphilis. second edn, Springer. 2018; 1-87.
4. Maricruz Nunes Magalhaes, Laura Elisabete Ribeiro Barbosa. Anal Canal Squamous Carcinoma. J Coloproctol. 2017; 37(1): 72-79.
5. Roberts JR, Siekas LL, Kaz AM. Anal intraepithelial neoplasia: A review of diagnosis and management. World J Gastrointest Oncol. 2017; 9(2): 50-61. doi: 10.4251/wjgo.v9.i2.50. PMID: 28255426; PMCID: PMC5314201.
6. Wells JS, Holstad MM, Thomas T, Bruner DW. An integrative review of guidelines for anal cancer screening in HIV-infected persons. AIDS Patient Care STDS. 2014; 28(7): 350-357. doi: 10.1089/apc.2013.0358. PMID: 24936878.
7. Grulich AE, Poynten IM, Machalek DA, Jin F, Templeton DJ, Hillman RJ. The epidemiology of anal cancer. Sex Health. 2012; 9(6): 504-508. doi: 10.1071/SH12070. PMID: 22958581.
8. Michelle D Inkster, James S Wu. Anal dysplasia detection during routine screening colonoscopy. Surg Case Rep Rev. 2018; 1-5.
9. Nadal SR, Calore EE, Nadal LR, Horta SH, Manzione CR. Citologia anal para rastreamento de lesões pré-neoplásicas [Anal cytology for screening of pre-neoplastic lesions]. Rev Assoc Med Bras (1992). 2007; 53(2): 147-151. doi: 10.1590/s0104-42302007000200020. PMID: 17568919.
10. Albuquerque A. High-resolution anoscopy: Uncharted territory for gastroenterologists? World J Gastrointest Endosc. 2015; 7(13): 1083-1087. doi: 10.4253/wjge.v7.i13.1083. PMID: 26421104; PMCID: PMC4580949.
11. Nadal S, Manzione C. Human papillomavirus vaccines. What we must know? Revista Brasileira de Coloproctologia. 2010; 30: 237-240.
12. Sharara AI, Bou Daher H. Bowel Cleansing Strategies After Suboptimal Bowel Preparation. Clin Gastroenterol Hepatol. 2019; 17(7): 1239-1241. doi: 10.1016/j.cgh.2018.12.042. PMID: 30625406.
13. Gurudu SR, Ratuapli S, Heigh R, DiBaise J, Leighton J, Crowell M. Quality of bowel cleansing for afternoon colonoscopy is influenced by time of administration. Am J Gastroenterol. 2010; 105(11): 2318-2322. doi: 10.1038/ajg.2010.235. PMID: 21048676.
14. Massinha P, Almeida N, Cunha I, Tomé L. Clinical Practice Impact of the Boston Bowel Preparation Scale in a European Country. GE Port J Gastroenterol. 2018; 25(5): 230-235. doi: 10.1159/000485567. PMID: 30320161; PMCID: PMC6170922.
15. Kränke B, Trummer M, Brabek E, Komericki P, Turek TD, Aberer W. Etiologic and causative factors in perianal dermatitis: results of a prospective study in 126 patients. Wien Klin Wochenschr. 2006;118(3-4): 90-94. doi: 10.1007/s00508-006-0529-x. PMID: 16703252.
16. Agulló-Pérez AD, Hervella-Garcés M, Oscoz-Jaime S, Azcona-Rodríguez M, Larrea-García M, Yanguas-Bayona JI. Perianal Dermatitis. Dermatitis. 2017; 28(4): 270-275. doi: 10.1097/DER.0000000000000274. PMID: 28338543.
17. Daling JR, Weiss NS, Hislop TG, Maden C, Coates RJ, Sherman KJ, et al. Sexual practices, sexually transmitted diseases, and the incidence of anal cancer. N Engl J Med. 1987; 317(16): 973-977. doi: 10.1056/NEJM198710153171601. PMID: 2821396.
18. Isik O, Aytac E, Brainard J, Valente MA, Abbas MA, Gorgun E. Perianal Paget's disease: three decades experience of a single institution. Int J Colorectal Dis. 2016; 31(1): 29-34. doi: 10.1007/s00384-015-2342-3. PMID: 26260479.
19. Inkster MD, Wiland HO, Wu JS. Detection of anal dysplasia is enhanced by narrow band imaging and acetic acid. Colorectal Dis. 2016; 18(1): O17- O 21. doi: 10.1111/codi.13170. PMID: 26531125; PMCID: PMC4738374.
20. Oette M, Wieland U, Schünemann M, Haes J, Reuter S, Jensen BE, et al. Anal chromoendoscopy using gastroenterological video-endoscopes: A new method to perform high resolution anoscopy for diagnosing intraepithelial neoplasia and anal carcinoma in HIV-infected patients. Z Gastroenterol. 2017; 55(1): 23-31. doi: 10.1055/s-0042-117646. PMID: 27806411.