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Pathological findings of colorectal polyps analyzed in Curitiba – Brazil

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ABSTRACT

Context: Colorectal cancer is the third leading cause of death from malignancy in the world and the fourth leading cause in Brazil's ranks. Adenomatous polyps are considered premalignant lesions, and its resection reduces both morbidity and mortality rates.
Objectives: Investigate the prevalence of premalignant lesions and correlate it with age and gender, as well as with the lesion found profile: location, morphology, histology and grade dysplasia.
Methods: This was a retrospective, observational and descriptive study. We analyzed and tabulated results of polyps reports sent to Pathology Laboratory in the period ranging from January 1 to December 31, 2013, in Curitiba, Paraná, Brazil.
Results: We analyzed 4640 reports of colorectal polypectomy, coming from 3089 patients, of whom 97.6% were examined by colonoscopy. Concerning gender, 56.5% were female and 43.5% were male. The mean age was 57.6 years (ranging from 15 to 92 years). The predominant removal areas of polyps were rectum in 26.2% and sigmoid in 24.2% cases. About histological aspects, the most common type – adenoma – was present in 75.1% polyps, of which 74.2% were tubular and 21.7% were serrated. Among the non-adenomatous polyps, hyperplastic prevailed with 88.7% cases. Malignancy was observed in 100 cases (2.15%).
Conclusion: This study showed higher incidence of colorectal polyps in women, although adenocarcinomas are equally distributed in both sexes. In addition, the average age of patients undergoing colonoscopy is decreasing. Furthermore, 2.15% polyps sent for pathology analysis were found to be malignant.

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Achados anatomopatológicos de pólipos colorretais analisados em Curitiba – Brasil

Palavras-chave:
Colonoscopia
Pólipo
Câncer colorretal

RESUMO

Contexto: O câncer colorretal (CCR) é a terceira causa de morte por doença maligna no mundo e, no Brasil, ocupa a quarta posição. Os pólipos adenomatosos são considerados lesões pré-malignas e a sua ressecção diminui a taxa de morbimortalidade.
Objetivos: Verificar a prevalência das lesões pré-malignas e malignas, correlacionando com a idade e gênero, com perfil da lesão encontrada: tamanho, localização, aspecto morfológico, tipo histológico e grau de displasia.
Métodos: Estudo retrospectivo, observacional e descritivo. Foram analisados os resultados dos laudos encaminhados a um Laboratório de Patologia, no período de janeiro a dezembro de 2013, em Curitiba, Paraná, Brasil.
Resultado: No total, analisou-se 4640 laudos de polipectomias colorretais, oriundos de 3089 pacientes, dos quais 97,6% realizaram exame por colonoscopia. Em relação ao gênero, 56,5% eram mulheres e 43,5% homens. A idade média foi 57,6 anos (entre 15 e 92 anos). Os locais predominantes de retirada dos pólipos foram reto (26,2%) e sigmoide (24,2%) dos casos. Em relação aos aspectos histológicos, o tipo mais comum foi adenoma, presente em 75,1% dos pólipos, dos quais 74,2% eram do tipo tubular e 21,7% serrilhado. Dentre os pólipos não adenomatosos, predominou o hiperplásico com 88,7% dos casos. A presença de malignidade foi observada em 100 casos (2,15%).
Conclusão: O presente estudo evidenciou maior frequência de pólipos colorretais em mulheres, embora os adenocarcinomas estejam distribuídos igualmente em ambos os sexos. Além disso, a média de idade dos indivíduos que fazem colonoscopia está diminuindo. Malignidade foi encontrada em 2,15% dos pólipos encaminhados para análise anatomopatológica.

Introduction

Colorectal cancer (CRC) is the third cause of deaths related to malignant diseases all over the world[1] and it is the fourth leading cause in Brazil.[1,2] In 2012, CRC frequency reached out 29,870 cases. According to Brazilian's Cancer National Institute (*Instituto Nacional do Câncer – INCA*),[3] in south region, CRC can be found in 20.4 and 21.8 per thousand men and women respectively.[3] The prevalence is higher for people among 60–79 years and also for female sex.[2,3] In Brazil, recommendations of the governmental public health institution (*Ministério da Saúde*) preconize screening strategies using fecal occult blood test in individuals from 50 to 75 years, followed by sigmoidoscopy or colonoscopy if the first test is positive. Colonoscopy is the gold-standard for CRC due to its cost-effectiveness.[4]

Colorectal polyps are projections in large bowel mucosa and can be either neoplastic or not. Neoplastic polyps are adenomas and carcinomas, while non-neoplastic polyps are hamartomas, inflammatory, hyperplasic or metaplastic polyps.[2,5] The adenoma histological type increases 2–3 times the risk of CRC development. It is possible to resect polyps before its malignization. This procedure decreases morbimortality rates for CRC and increases to 90% the five-year survival rate.[4] According to the National Polyp Study, after an adenoma resection, the recurrence risk is 32–41.7%.[1]

In this study, we analyzed the pathological reports from polypectomies in a Laboratory of Pathology in Curitiba, Brazil, in 2013. The aim was to establish the frequency of pre-malignant and malignant lesions and correlate them with patient demographical information (age and gender), as well as with the findings of the lesion itself, such as localization, morphological and histological type and presence of dysplasia.

Methods

Positivo University Ethics Committee approved the research and the protocol number of the approval is 28872014.7.0000.0093. This study analyzed exclusively medical reports and was exempted of Free and Informed Consent Term, ensuring data confidentiality.

This is a retrospective, observational and descriptive study, which analyzed three thousand and eighty nine polypectomies histopathological reports in a private pathology Laboratory in Curitiba, from January to December 2013. The variables described were age, sex, number of lesions for each patient, histological type, dysplasia (presence and degree), and polyp location. A computerized system was used to survey the reports. Two trained and experienced pathologists evaluated all histopathological aspects of the polyps, decreasing subjectivity bias.

All patients included were from outpatient clinics submitted to retosigmoidoscopy or colonoscopy in this period.

The reports standardization was based on the Histopathological Reports Patterning Manual (*Manual de Padronização Histopatológica*) from Brazilian Society of Pathology, 4th edition (2015). Reports without enough information about age, sex or polyp location were excluded.

Data were organized in spreadsheets using Excel (*Microsoft*®). For statistical analysis Graph Pad Prism 5.0 was used. Statistical significance level adopted was 5% ($p \leq 0.05$), applying Fisher and Chi square tests to associate nominal variables and Mann–Whitney or *T student* test for continuous variables.

Results

Three thousand and eighty nine polypectomies histopathological reports were analyzed, totaling 4640 polyps. The average number of polyps for each patient was 1.5. Population data ($n = 3089$) and polyps ($n = 4640$) location distribution are shown in Table 1. Women presented higher frequency of polyps than men ($p < 0.001$).

Histological types and presence of dysplasia are shown in Table 2. Adenomatous polyps represented 75.1% of all cases. Malignant cases represented 2.1% ($n = 100$), divided in: 92 cases of adenocarcinoma, 8 cases of carcinoma, which 5 cases of small-cell carcinoma, 2 cases of mucinous carcinoma and 1 case of squamous-cell carcinoma.

The main location for adenocarcinoma cases was sigmoid (35%), followed by rectus (29.9%). The mean age was 62.3 ± 11.4 years. Still for adenocarcinoma cases, 64.1% were classified as low grade/well differentiated and 29.3% as invasive. These items are includes in Table 3.

Age groups distribution, most frequent location and sex proportion for adenocarcinoma cases are shown in Table 4.

Table 1 – Population data ($n = 3089$) and polyps location distribution ($n = 4640$).

	n	%
Population data		
Sex		
Male sex	1342	43.5
Female sex	1747	56.5
Age (in years)		
Mean age (± SD)	57.6 ± 12.3	
<50	726	25.1%
51–65	1424	49.3%
>66	739	25.6%
Procedure ($n = 3089$)		
Colonoscopy	3015	97.6%
Sigmoidoscopy	12	0.3%
Information not found	62	2.1%
Polyp location ($n = 4640$)		
Sigmoid	1124	24.2
Rectus	1218	26.2
Ascendent	727	15.7
Transverse	636	13.7
Other	865	18.6
Information not found	69	1.7

Table 2 – Histological types in all polyps studied.

	n	%
Hystological type		
Hyperplasic	900	19.4
Inflammatory	87	1.9
Lymphoid	27	0.6
Adenoma	3488	75.1
Malignant[a]	100	2.15
Hystological subtypes for adenomas	*%*	*Presence of dysplasia*
Tubular	74.2%	5.3%
Tubulo-villous	3.7%	61.5%
Villous	0.4%	76.9%
Serrated	21.7%	0.2%
Dysplasia degree (for adenomas only)		
Low degree	93.4%	
High degree	6.6%	

[a] Among the malignant cases: 92 adenocarcinomas, 8 carcinomas (5 small-cell carcinoma, 2 mucinous carcinoma and 1 squamous-cell carcinoma).

Table 3 – Detailed information about all adenocarcinoma ($n = 92$) found in the study.

Information	*n*	(%)
Male sex	42	50.5
Female sex	40	49.5
Mean age (years)	62.3 ± 11.4	
Location		
Sigmoid	34	35
Rectus	29	29.9
Ascending	10	10.3
Transverse	6	6.1
Other	16	16.4
Information not found	2	2.2
Differentiation grades		
Low grade/well differentiated	60	65.2
Moderately differentiated	29	31.5
High grade/poorly differentiated	2	2.2
Information not found	1	1.1
Invasion		
Invasive	27	29.3
Intramucosal	34	36.9
In situ	15	16.3
Information not found	16	17.5

Table 4 – Age groups distribution, most frequent location e sex proportion in adenocarcinoma cases.

Age (in years)	Women	Men	Location (most frequent)
≤50 ($n = 13$)	9 (20.9%)	4 (8.1%)	Sigmoid (46.1%)
51–65 ($n = 39$)	16 (37.2%)	23 (46.8%)	Sigmoid (43.5%)
>66 ($n = 40$)	18 (41.9%)	22 (45.1%)	Sigmoid (27.5%)

Discussion

According to INCA data, in Brazil, the CRC annual incidence totalizes 32,600, and it is more common in women.[3] Eventually, CRC is olygosymptomatic or asymptomatic until the

advanced stage of disease. However, CRC is a preventable disorder. Screening strategies for high-risk population have been relevant to decrease mortality. Detection and removal of polyps are important preventive actions before malignancy, since some tumors emerge as polyp lesions at first.[3] Histological study must be performed in order to provide epidemiological information, thus new preventive strategies could be developed and managed in different geographic regions. In this research, histological reports from colorectal polyps were analyzed during twelve months in a single Pathology Laboratory in Curitiba-PR.

In this study, polyps were more frequent in women, likewise previous researches.[6–8] The mean age found was lower than the one showed in national literature. Almost one third of polyps were observed in people younger than 65 years. Valarini et al.[8] analyzed 444 cases in Curitiba and related a mean age of 58 (±12.1 years). Among adenocarcinoma cases, the mean age was higher, with 62.3 (±11.4 years). The mean age group was 50–65 years-old. Adenocarcinoma was equally found in men and women and this data differs from literature, since CRC is more frequent in female sex.[5]

Polyp removal was performed by colonoscopy in 97.6% of the cases, showing that this procedure is preferred instead, according to national recommendations.[5] Polypectomy performed by this procedure can decrease in 76–90% the risk of CRC, in all stages of its development, being an important preventive action for precursor lesions.[5,9]

The most frequent location was rectus, followed by sigmoid. However, Santos and cols (2008, $n = 1579$)[10] showed ascending colon as a more frequent location for this lesions. In the present study, more than two thirds of all cases were related as adenoma histological type. Santos and cols presented the adenoma histological type in 47.3%. Low degree dysplasia was described in 93.4% of the cases in our sample.

Among adenoma, the most frequent type was the tubular. When compared to other national studies,[8,10] in our study was found a higher frequency of adenomatous polyps' serrated type (21.7%). Serrated type represents a group of polyps with several recently recognized subtypes associated to different colonoscopic appearance, histology, molecular alteration and risk of progression to malignancy.[11] Management of patients with these polyps depends on understanding their natural history, especially the transition to malignancy. There is evidence that these lesions are associated with CRC, however, prospective studies are needed to assess the risk of CRC in patients diagnosed with serrated polyp.[11] However, regardless of the histological type identified, according to the National Polyp Study,[1] adenomatous polyps should be monitored.

Malign polyps were found in 2.1% cases. This frequency is within the standard for this geographic region.[11,12] Among them, 65% were described in rectus and sigmoid. Most of them were well-differentiated and low degree; nevertheless, invasive tumors represented 29.3%. Similar rates for adenocarcinoma in polyps were described in other studies in Brazil's south region (2.66% and 2.1%).[11,12] In our study, 5 cases (0.1%) were also diagnosed as polyps classified as small-cell type, all in women. Small-cell carcinomas are malignancies derived from cells of the neuroendocrine system. Colorectal small-cell carcinoma is a rare tumor and its incidence is less than 0.2% among all kinds of CRCs.[13]

A limitation of our study was lack of clinical information concerning our patients, since only histopathological reports were analyzed. We could not reach the clinical indication for the procedure (colonoscopy or polypectomy) for each patient.

In conclusion, this present study analyzed histological findings in polypectomies medical reports. It was observed that polyps were more frequent in women, although adenocarcinoma cases were distributed equally in both sexes. In addition, the mean age of people submitted to the procedure (colonoscopy/polypectomy) is decreasing. Beyond that, the most frequent location for polyps was rectus, followed by sigmoid. Adenoma type was found in two thirds of all cases, and the tubular subtype was the most frequent. Besides, adenocarcinoma represented 2.1% of all cases.

Conflicts of interest

The authors declare no conflicts of interest.

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