



## Rectosigmoidectomy with colorectal anastomosis and nephrectomy due to adenomatous polyps, rectal adenocarcinoma and renal cell carcinoma in a post-COVID-19 patient

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### ABSTRACT

Objective: To report a case of a senile patient with colorectal cancer, multiple adenomatous polyps, renal tumor and COVID-19. To analyze the

proposed therapies and the relevance of rectosigmoidectomy and nephrectomy as a treatment for rectal adenocarcinoma and renal carcinoma. Case details: Male patient, 82 years old, sought a hospital in 2019 with abdominal pain crises, extensive ecchymosis in the right upper limb, petechia in the lower lip, chills, diaphoresis, hematuria and melena. Colonoscopy showed a vegetating rectal lesion, ascending colon polyps and colonic diverticulosis. In June 2020, developed dyspnea, fever, weakness and general malaise, confirming COVID-19 in laboratory tests, cured two weeks after treatment. In August 2020, the colonoscopy, several sessile polyps and a 5 cm polypoid lesion in the rectum were observed. Biopsy indicated rectal adenocarcinoma. Renal tumor on the right was identified by computed tomography of the abdomen and ultrasound of the total abdomen. The patient was then submitted to rectosigmoidectomy with colorectal anastomosis and nephrectomy on the right. Final considerations: The colonoscopy is still considered an excellent screening test for intestinal polyps. Regarding rectal adenocarcinoma, rectosigmoidectomy is considered an effective curative treatment. Finally, COVID-19 is considered a risk factor for high mortality in cancer patients.

**Keywords:** SARS-CoV-2, colonic polyps, adenocarcinoma, rectal resection, nephrectomy.

## 1 INTRODUCTION

Coronaviruses have been present in nature for millions of years, with considerable subtypes of coronaviruses coexisting with numerous species of mammals. Some species of bats even have particular strains of coronavirus. However, the first coronaviruses were detected by man around 1960. The infection of these viruses is relatively common in human beings. Thus, respiratory infections may have no clinical relevance or become severe respiratory syndromes such as MERS – Middle East Respiratory Syndrome or SARS – severe acute respiratory syndrome (JOFFRIN L, et al., 2020).

COVID-19 is a relatively new diagnostic identity. It was first found in laboratory tests from December 2019. Its more specific signs and symptoms are tiredness, fever, dyspnea, chest pain and cough. Because it has neurotropism already corroborated in the literature, COVID-19 also leads to

anosmia and ageusia in some patients (MENEGASSI FGM, et al., 2020). The disease is expressed by SARS-CoV-2, which is a betacoronavirus with a spherical configuration shaped by spicules on its surface, giving it a crown-like appearance. Internally, it has an RNA strand of approximately 100 nanometers (SINGHAL T, 2020). At the current moment, the World Health Organization indicates 33,502,430 confirmed cases and 1,004,421 deaths (WORLD HEALTH ORGANIZATION, 2020).

Concerning polyps, they can be organized into different categories due to their behavior. Adenomatous polyps can conceive cancer at the intestinal tissue level. For this reason, these polyps are established as being a prodromal state of malignant neoplasm. These adenomas can be divided into tubular, villous and tubulovillous. Some polyps do not lead to cancer, such as hyperplastic and inflammatory polyps.

Polyps classified as serrated sessile are approached as adenomas of great clinical relevance in the context of colorectal cancer (CRC). It is important to consider, as risk factors for CRC: polyps > 1cm; more than 3 polyps in the intestine; dysplasia. Dysplasia results from the ongoing injury, genetic mutations, and imbalance associated with a cell's growth and repair.

The CCR is verified through 3 different paths. The first occurs via adenoma-carcinoma, accounting for approximately 70% of malignant neoplasms. The second stems from the rare Lynch Syndrome, accounting for about 5% of malignant tumors (MT). The third, known as serrated, comprises about 30% of all CCRs. Serrated polyps are most commonly found on colonoscopy. This pathway still has gaps in its understanding (SINGH R, et al., 2016; SZYLBERG L, et al., 2015).

The present study aimed to narrate a case of a patient with rectal adenocarcinoma, adenomatous polyps and right renal mass. The study also discussed rectosigmoidectomy with colorectal anastomosis and nephrectomy (RACN) as therapeutic measures proposed and implemented in elderly patients and recent post-COVID-19 cure.

## 2 CASE DETAILS

E.R., male, 82 years old, presented in May 2019 with abdominal pain crises, extensive ecchymosis on the right upper limb, petechiae on the lower lip, chills, diaphoresis, hematuria and melena. The patient had a past pathological history of arterial hypertension, labyrinthitis and heavy smoking, with a smoking history of 68 packs/year.

Computed tomography of the abdomen without contrast showed mild distension of the intestinal loops, circumferential parietal thickening in a segment of the loop in the hypogastric region, densification of the adjacent mesenteric fat. Such findings suggest an inflammatory-infectious process, and it is not possible to exclude, in the study without contrast, the possibility of intestinal ischemia. Nodular parietal thickening of the rectum. Renal nodule on the right.

At upper digestive endoscopy: record of mild enanthematic pangastritis. Total abdominal ultrasound: renal tumor on the right. At colonoscopy: sparse diverticular ostia; presence of a 3mm sessile polyp in the ascending colon; presence of a vegetating lesion with a villous aspect about 8cm from the anal margin, measuring approximately 5cm, occupying 30% of the circumference of the organ on the posterior wall of the rectum. The anatomopathological analysis revealed tubular adenoma with low-grade dysplasia in the ascending colon and villous adenoma with high-grade dysplasia in the rectum.

In June 2020, an 83-year-old patient developed dyspnea, fever, weakness and general malaise, confirming COVID-19 in laboratory tests. Patient was treated, evolving with the improvement of symptoms and cure of the disease after two weeks of treatment.

In August 2020, at the new colonoscopy, the fundus of the cecum was well visualized, presenting two flat, wine-colored lesions, with a vascular appearance, measuring between 2-3 mm, suggestive of angiectasia, without stigmas of active bleeding. Four sessile polyps were observed, measuring between 2-4 mm, with a regular surface, located in the ascending colon, hepatic angle, proximal transverse colon and descending colon.

Presence of sparse diverticular ostia, with a wide and narrow base, hypotonic, distributed throughout the sigmoid colon, without inflammatory signs or bleeding stigmata. In the upper rectum, approximately 12 cm from the anal margin, a polypoid lesion measuring approximately 5 cm, of soft consistency, with an apparent pedicle and a large vessel in between was recorded. The surface of the lesion was enanthematic and had discreet avascular areas that indicated adenocarcinoma. At the biopsy, the anatomopathological diagnosis determined: tubular adenomas with mild dysplasia in the colon, hyperplastic polyp without atypia in the colon and glandular lesion with severe atypia, favoring the diagnosis of well-differentiated rectal adenocarcinoma.

In September 2020, RACN was performed on the right. Initially, the left parietocolic gutter was released up to the splenic angle cranially. High ligation of the inferior mesenteric artery and vein. Descent and release of the peritoneum to the rectum caudally with visualization and preservation of the gonadal vessels and left ureter. Ligation of the sigmoid colon mesentery vessels close to the colon. Circumferential dissection and isolation of the upper and middle rectum.

Medium straight section with a linear stapler. Dissection and section of the sigmoid with the making of a tobacco pouch and placement of a circular stapler nose in the colon stump. Tension-free colorectal anastomosis was performed with a 33mm circular stapler passed through the anorectal route. Intact anastomotic rings. Rubber manoeuvre.

Subsequently, the right parietocolic gutter was released up to the hepatic angle. Identified, dissected, sectioned and ligated the left ureter. Renal dissection with identification and isolation of the

right renal artery and vein. Double ligation of the proximal renal artery and vein was performed. A right nephrectomy was performed. The right kidney was sent to pathology for analysis. Result: histopathological picture of renal cell carcinoma, clear cell type. Fuhrman nuclear grade II. Tumor measuring 3.0x1.5cm.

Tubular, trabecular architectural pattern and solid focal areas. The presence of tumor necrosis compromises 30% of the neoplasm. Neoplastic emboli in the tumor microvasculature not evidenced. Absence of tumor infiltration in the ureter, vessels of the renal hilum, capsule and perirenal fat. Surgical margins are free of neoplasia. Pathological staging: pT1a, pNx, pMx. On the 8th postoperative day, the patient evolved in good general condition, contact, with physiological eliminations, in good acceptance of the diet, walking without effort, restful sleep, physiological vital signs, with a surgical wound in good aspect, clean and dry. Hospital discharge on September 19, 2020.

### 3 DISCUSSIONS

The present case portrays a patient with a recent history of SARS-CoV-2 infection and an outpatient coloproctology follow-up since May 2019 with a diagnosis of adenomatous polyps. After exams performed the following year and after diagnosis of well-differentiated adenocarcinoma in the rectum and right renal mass, RACN was chosen. The clinical management of cancer patients has always been a great challenge. However, the current pandemic situation has made the management of cancer patients much more complex. It is essential to balance the damage of late oncological treatment for the patient with COVID-19. It is worth noting that studies have already proven the deleterious relationship of surgery or chemotherapy associated with SARS-CoV-2.

Even if cancer treatment is carried out months before the coronavirus infection, these patients tend to develop a more severe clinical picture. Cancer patients are 5 times more likely to develop severe forms of COVID-19 and 8 times more likely to die than the normal population (DENYS A, et al., 2020).

The patient in the present study had four 4mm sessile polyps, regular surface, located in the ascending colon, hepatic angle, proximal transverse colon and descending colon. In the rectum, there was a polypoid lesion measuring 5cm, mobile, with a soft consistency, with a pedicle and a large caliber vessel in between. At biopsy, the diagnosis established tubular adenoma with mild dysplasia, hyperplastic polyp without atypia and glandular lesion with severe atypia indicating well-differentiated adenocarcinoma.

Colorectal polyps are growths from the colon into the intestinal lumen. Polyps can be considered benign tumors and, in some cases, lead to CRC. Thus, in some contexts, surgical removal of polyps is necessary to prevent cancer. A polyp can be divided into benign, adenomatous (or

precancerous) and adenocarcinoma. It is still possible to group them into adenomatous and non-adenomatous polyps. Adenomatous tumors can be tubular, villous or tubulovillous (AMERICAN CANCER SOCIETY, 2017; NGUYEN LH, et al., 2019).

In addition to the 3 types of adenomatous polyps, there are serrated polyps that are considered adenomas due to their potential impact on CRC. These constitute a distinct group of polyps as they lead to serrated colorectal carcinoma. The serrated pathway is defined by DNA methylation and BRAF genetic alterations. Serrated polyps can be subdivided into three groups: hyperplastic polyp, conventional serrated adenoma and sessile serrated adenoma. Among non-adenomatous polyps, there are hyperplastic and inflammatory ones that are more common and do not tend to become malignant (BICALHO LGMF, et al., 2015; AMERICAN CANCER SOCIETY, 2017).

Polypectomy reduces death by approximately 50% from CRC in the first decade. The CCR is verified through 3 different paths. The first occurs via adenoma-carcinoma, accounting for approximately 70% of TMs. The second permeate the rare Lynch Syndrome, responsible for about 5% of MDs. The third, or serrated, comprises about 30% of all CCRs.

Serrated polyps are one of the most commonly found polyps on colonoscopy. This route still has gaps in its understanding. Excision of serrated polyps has a good prognosis in preventing CRC. However, many serrated lesions are difficult to diagnose and not all lead to cancer. Traditional serrated adenomas have a definite correlation with TMs. Sessile serrated adenomas are more complex. These are the polyps that most lead to CRC within the serrated pathway, however, they are easily confused with hyperplastic polyps in colonoscopy (SINGH R, et al., 2016; NGUYEN LH, et al., 2019).

At the molecular level of CCR, a triple path from benign lesions to their malignancy was observed. This path is supported by the genetic and epigenetic peculiarities associated with the lesions. 5 subtypes have been demonstrated. The serrated pathway is well defined in subtypes 1 to 3. Microsatellite instability and stability are correlated to subtypes 1 and 2. It is worth noting that microsatellite instability results from continued damage at the DNA level resulting from genetic and epigenetic changes that are transferred between cells in cell proliferation.

These mutations are generated in fragments of the DNA strand with patterned recurrence every 1-5 nucleotides that were called microsatellites. Subtypes 1 and 2 are characterized by the islet hypermethylation factor CPGs and alteration of the BRAF oncogene. Subtypes 2 and 3 are related to high mortality. Subtype 4 establishes the etiology of RCC linked to the traditional adenoma-carcinoma pathway. This subtype has low microsatellite instability, negative KRAS and BRAF oncogenes. Subtype 5 signals a family history of CRC and Lynch Syndrome cancer (SINGH R, et al., 2016; POPOUTCHI P, 2016).

According to Nguyen LH, et al. (2019), traditional tubular adenomas and serrated pathway polyps are most responsible for the appearance of RCC. The colorectal tumor results from the constant renewal of the tissues of the gastrointestinal mucosa. Epithelial growth takes place only at the base of the tissue structure. However, starting from the base, oncogenic cells proliferate towards the intestinal lumen, interrupting cell differentiation, DNA replication repair and occasional apoptosis. Thus, adenomatous polyps begin to acquire dysplastic properties, transmuting the normal epithelium into hyperproliferative. Finally, an adenocarcinoma will be generated.

Clinical manifestations of CRC can be symptomatic or asymptomatic. When asymptomatic, the diagnosis of cancer is made through screening tests. However, when symptomatic, the main signs and symptoms presented are: abdominal pain, change in bowel habits, melena hematochezia, asthenia, anemia and weight loss (THANIKACHALAM K and KHAN G, 2019).

In 2015, a CCR consortium that specified 4 subtypes was determined. The criteria are based on microsatellite instability and KRAS, BRAF, PI3KCA mutations (GUINNEY J, et al., 2015). The classes are: CMS1 (MSI-immune), CMS2 (Canonical), CMS3 (metabolic), CMS4 (mesenchymal), with an incidence of 14%, 37%, 13% and 23%, respectively (WIELANDT AM, et al., 2017). As for histological classification, the main form of CRC is represented by adenocarcinoma. The other forms described in the literature are mucinous cell carcinoma (PESTANA JSG and MARTINS SFF, 2016).

One of the main measures to reduce CRC mortality is colonoscopic surveillance, especially when one can identify and resect pre-neoplastic lesions. In Brazil, there are screening alternatives in addition to colonoscopy, such as: fecal occult blood test, flexible sigmoidoscopy every 5 years or biannual rectosigmoidoscopy, starting from the age of 50 (DE MENEZES CCS, et al., 2016; BRENNER H, et al., 2014).

CCR is the third most prevalent on the planet. About the gastrointestinal tract, it is considered the most frequent, especially in the elderly. Approximately 80-90% of patients have a late diagnosis, discovering the neoplasm already in an advanced stage. Thus, the guidelines recommend early screening in patients suspected of having cancer. As for renal neoplasms, attention must be paid to their main precursor: renal cell carcinoma. The concurrence of primary TMs is a very unusual phenomenon. However, in recent decades, a synchronism of these primary tumors in the same patient has increasingly been observed (SILVA AAM, et al., 2017).

The sites with the highest incidence of metastatic implantation are the liver, lungs, lymph nodes, peritoneum and, rarely, bones and central nervous system. Because the venous/lymphatic drainage differs between the colonic segments, there is a higher proportion of lung metastases from primary tumors of the distal rectum (drainage via the inferior vena cava) than in the other segments, which have a predominance of liver metastases due to drainage through the portal system. The main

complications of metastases are painful hepatomegaly, carcinomatous ascites, bladder dysfunction, pulmonary and bone involvement (THANIKACHALAM K and KHAN G, 2019).

Concerning renal tumors, renal cell carcinoma (CaCR) is the third most common cancer of the genitourinary tract, and represents approximately 4% of MTs. The most common histological subtype of this neoplasm is clear cell CaCR. The median age at diagnosis is 64 years and the incidence of this cancer has been increasing over the years due to the evolution of diagnostic methods and population aging. At the time of diagnosis, about 30% of patients in Brazil have metastases (SOARES A, et al., 2019).

Traditionally, the treatment for localized renal tumors (up to T2c) and larger tumors was radical nephrectomy, but this technique can result in complications such as chronic renal failure and cardiovascular compromise. However, currently, partial nephrectomy has shown to be a relevant option in the treatment of small masses, in addition to presenting itself as a promising alternative for the management of larger renal tumors (LI J, et al., 2019).

It can be concluded from the proposed work that colonoscopy is considered an excellent screening test in patients with non-adenomatous, adenomatous and serrated polyps. Regarding rectal adenocarcinoma, rectosigmoidectomy is considered an effective curative treatment. However, COVID-19 is a risk factor for high mortality in cancer patients. However, the case in question had a favorable clinical outcome with the patient being cured of the coronavirus and CRC.

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