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Case Report On Goblet Cell Adenocarcinoma Of The Appendix: A Rarity

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ABSTRACT

The rare appendix tumour known as the goblet cell carcinoid (GCC) is distinct from adenocarcinoma and other carcinoid tumours. The most typical symptoms are appendicitis, abdominal distention, and chronic abdominal pain. In this view, we present a case of a 41-year- old male patient who came with a complaint of right lower abdominal pain. Ultrasound abdomen revealed acute appendicitis. A laparoscopic appendicectomy was performed. Histopathological examination reported an appendix showing carcinomatous changes, goblet cell adenocarcinoma low grade. The patient agreed to proceed with a right hemicolectomy, 2- 4 weeks after his appendectomy. Our goal was to increase public awareness of this rare condition and also emphasize how challenging it is to diagnose correctly.

Keywords: *Goblet cell adenocarcinoma, Appendectomy, Right Hemicolectomy, Appendicitis*

1. INTRODUCTION

An uncommon mucus-secreting tumor called a goblet cell adenocarcinoma is also known as goblet cell carcinoid (GCC) of the appendix has the ability to differentiate into both mucinous and neuroendocrine cells[1]. GCC typically manifests with acute abdominal pain, clinical evidence of appendicitis in 50–60% of cases, or no symptoms at all, similar to the majority of appendix tumors [2]. The disease history of GCC can vary depending on the grade and depth of invasion. This can range from benign and slow developing to aggressive with significant malignant potential[4]. GCC is incredibly uncommon, making up around 14–19% of primary appendix tumors. With an average age at diagnosis of 58, GCC is more prevalent among Caucasians. There is no known variation in incidence between males and females. Currently, no known or established risk

factors increase a person's probability of developing GCC [2]. There is an increase in GCC cases. 98.3% of cases in a study of the Surveillance, Epidemiology, and End Results(SEER) registry from 1973 to 2014 were diagnosed between 1994 and 2014. Another SEER database study reveals that only 37.8% of GCC were diagnosed between 2004 and 2009, with the prevalent 62.2% diagnosed between 2010 and 2016. This indicates that the pace of growth has been growing in recent years. The National Cancer Database (NCDB) analysis showed a very similar pattern, with 96% of the instances of GCC occurring after 2010. In the bigger registry studies, the proportion of GCC among all appendiceal neoplasms varied between 10% and 23%, most likely as a result of inconsistent inclusion of benign appendiceal neoplasms[1]. In this article, we highlight an interesting GCC case involving a 41-year-old male patient who was hospitalized at Multispeciality hospital's general medicine department and had previously undergone a laparoscopic appendicectomy. The necessary steps have been taken, and consent has been obtained, to ensure that the patient's privacy is safeguarded.

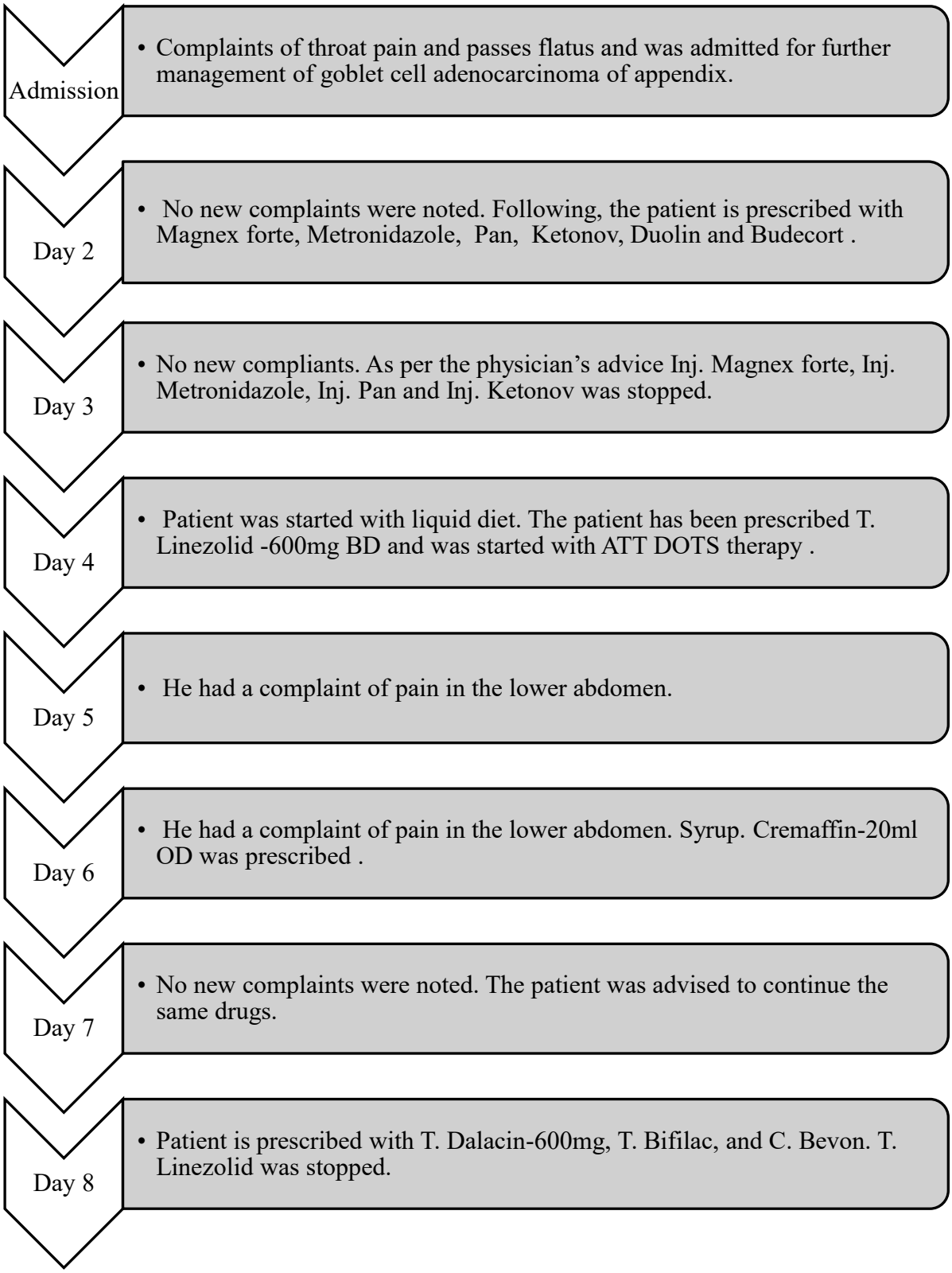
2. PATIENT INFORMATION

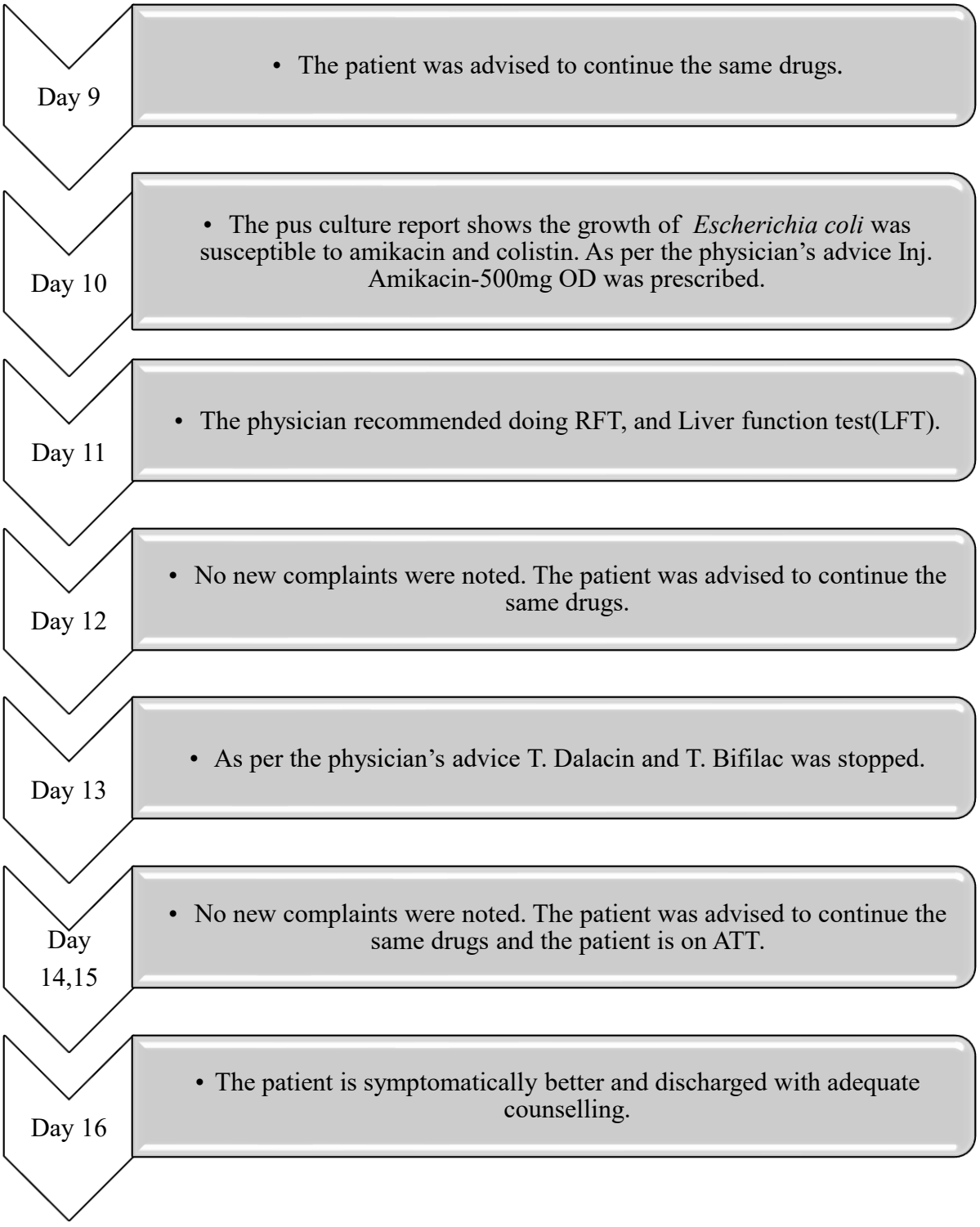
A 41-year-old male patient, presented in the medical outpatient department of a multispeciality hospital with a complaint of right lower abdominal pain for the past four days on August 19, 2024. No complaints of fever, vomiting, altered bowel and bladder, or loss of appetite. The patient has no known co-morbidities, the patient was married and has no related family history of colonic adenocarcinoma. He was a known smoker for the past 10 years and a known alcoholic [an occasional drinker]. On August 19, 2024, a High-dose contrast-enhanced computed tomography(CECT) abdomen showed dilated appendix of 12mm for which he underwent a surgical procedure(S/P) laparoscopic appendicectomy on August 20, 2024. And from then the patient was apparently asymptomatic 1 month back following which he developed pricking pain in right lower abdomen associated with episodes of vomiting, on September 15, 2024, for which he was admitted and underwent Incision and drainage of posterior cervical swelling on September 19, 2024, and later the patient underwent Right Hemicolectomy on September 28, 2024. The patient was admitted on October 3, 2024, for the further management of Goblet cell adenocarcinoma of the appendix.

3. CLINICAL FINDINGS

Following his admission, a general examination was performed and respiratory rate (RR) was 19 breaths/min, blood pressure (BP) was 120/80 mmHg, pulse rate of 74 beats/min, and was afebrile. The patient was presenting with Grade I clubbing[+], generalized lymphadenopathy[+], and Pedal edema+ [cervical- two lymph nodes of size 2*2cm in a posterior triangle]. On systemic examination, the cardiovascular system, central nervous system, and respiratory system are found to be normal. Abdominal investigations revealed that all quadrants move equally with respiration, with no obvious distensions, umbilicus in the midline, inverted, No scar, sinuses or dilated veins, and Hernial orifices free. Palpitation was found to be soft, with tenderness in the right iliac fossa around the umbilicus, guarding present with no rigidity. Auscultation has shown bowel sounds were present and percussion revealed not elicited due to pain. On laboratory examination, a complete blood count [CBC] shows decreased level of packed cell volume (PCV) count of 40.6% (N = 41- 59%) and a differential count of lymphocytes was 16.6% (N = 20-40%). The renal profile shows an elevated level of blood urea nitrogen (BUN) count of 19 mg/dl (N = 7-18 mg/dl) and the liver profile shows a decreased level of albumin of 3.3 g/dl (N = 3.4-5.0 g/dl) and the serology tests were found to be non-reactive.

According to the pus culture report, *Escherichia coli* was susceptible to amikacin and colistin. Histopathology reports revealed the clinical diagnosis of Tuberculosis(TB) and the impression revealed Necrotising granulomatous lymphadenitis and Anti-tuberculosis therapy(ATT) was started after pulmonology opinion, the clinical diagnosis of Goblet cell adenocarcinoma of the appendix and the impression revealed that A+B Right hemicolectomy specimen and port site. The cytology report revealed IA+IB+IC- granulomatous inflammation. Fine needle aspiration cytology(FNAC) was done for the cervical lymph node, and pulmonology opinion was obtained in the view of granulomatous inflammation of neck nodes according to FNAC and advised excision biopsy of the lymph node. GeneXpert shows Mycobacterium tuberculosis(MTB) not detected. FNAC report showed Acid-Fast Bacilli(AFB) negative and the patient was taken up for an excision biopsy of the right cervical posterior triangle lymph nodes.


Admission
• Complaints of throat pain and passes flatus and was admitted for further management of goblet cell adenocarcinoma of appendix.
Day 2
• No new complaints were noted. Following, the patient is prescribed with Magnex forte, Metronidazole, Pan, Ketonov, Duolin and Budecort .
Day 3
• No new compliants. As per the physician's advice Inj. Magnex forte, Inj. Metronidazole, Inj. Pan and Inj. Ketonov was stopped.
Day 4
• Patient was started with liquid diet. The patient has been prescribed T. Linezolid -600mg BD and was started with ATT DOTS therapy .
Day 5
• He had a complaint of pain in the lower abdomen.
Day 6
• He had a complaint of pain in the lower abdomen. Syrup. Cremaffin-20ml OD was prescribed .
Day 7
• No new complaints were noted. The patient was advised to continue the same drugs.
Day 8
• Patient is prescribed with T. Dalacin-600mg, T. Bifilac, and C. Bevon. T. Linezolid was stopped.



4. DIAGNOSTIC ASSESSMENT

CECT abdomen revealed that dilated appendix of 12mm, for which laparoscopic appendicectomy was performed. The removed appendix was sent for the histopathological test which revealed low-grade, Goblet cell Adenocarcinoma. The Ascending colon, a part of the transverse colon and a part of the ileum was sent for histopathological test, impression revealed that A+B Right hemicolectomy specimen and port site. The FNAC right posterior triangle nodes were sent for cytology testing which revealed IA+IB+IC- Granulomatous inflammation. The right posterior multiple lymph nodes (level V) were sent for histopathological testing, revealing TB [necrotising granulomatous lymphadenitis].

5. THERAPEUTIC INTERVENTION:

Treatment for GCC often requires surgery to remove the right side of the colon where the appendix originates, and intravenous chemotherapy. The patient was done with a Right hemicolectomy on 28th September 2024 and the patient's wife was instructed to follow the diet modifications and the ATT drugs, antibiotics, bronchodilators, and anti-neoplastic medications. The detailed intervention is given below:

DAY 1: On day 5 post-surgery of Right hemicolectomy (S/P Excision biopsy of right cervical node goblet cell carcinoma of the appendix), he had complaints of throat pain and passes flatus. As per the physician's advice capillary blood glucose level was monitored regularly and was also asked to do a Complete blood count(CBC), Renal function test(RFT), Serum electrolytes, and serum albumin. (Drain-40ml, RT – 70ml) Drugs: Inj. Magnex forte- 1.5g, Inj.metronidazole-500mg, Inj. Pan-40mg, Inj. Ketonov-30mg, Neb. Duolin- 1.25mg and Neb. Budecort -0.5mg.

DAY 2: No new complaints were noted. CBC, RFT, and Serum albumin are observed to be normal. Capillary blood glucose level was found to be 56mg/dl at 6 am and 80mg/dl at 6 pm. (Drain-50ml, RT- 80ml) .As per the physician's advice same drugs were continued. And was asked to do the pending laboratory investigations.

DAY 3: No new complaints were noted. Vitals were monitored regularly. (Drain – 67ml. RT- 82ml) . Capillary blood glucose level was found to be 82mg/dl at 6 am and 65mg/dl at 6 pm. As per the physician's advice Inj. Magnex forte, Inj. Metronidazole, Inj. Pan and Inj. Ketonov was stopped. And was asked to remove RT and block the drain.

DAY 4: No new complaints were noted. Vitals were monitored regularly. Capillary blood glucose level was found to be 119mg/dl at 6 am and 158mg/dl at 6 pm. As per the physician's advice, the patient started with a liquid diet. The patient has been prescribed T. Linezolid -600mg BD and was started with ATT DOTS therapy (T. Isoniazid-75mg/kg, T. Rifampicin-150mg/kg, T. Ethambutol-275mg/kg, T. Pyrazinamide -400mg/kg), T.Paracetamol-500mg(SOS), T.Pan-40mg and Resource high protein powder twice daily was given.

DAY 5: He had a complaint of pain in the lower abdomen. Vitals were monitored regularly. Capillary blood glucose level was found to be 93mg/dl at 6 am and 82mg/dl at 6 pm. The patient was advised to continue the same drugs.

DAY 6: He had a complaint of pain in the lower abdomen. Vitals were monitored regularly. Capillary blood glucose level was found to be 87mg/dl. Pus culture was sent to the laboratory. The patient was advised to continue the same drugs. Syrup. Cremaffin-20ml OD was prescribed and was also stopped on the same day.

DAY 7: No new complaints were noted. Vitals were monitored regularly. Capillary blood glucose level was found to be 87mg/dl. The patient was advised to continue the same drugs.

DAY 8: No new complaints were noted. Vitals were monitored regularly. Capillary blood glucose level was found to be 92mg/dl. The patient was advised to continue the same drugs. As per the physician's advice was started on T. Dalacin-600mg, T. Bifilac, and C. Bevon. T. Linezolid was stopped.

DAY 9: No new complaints were noted. Vitals were monitored regularly. Capillary blood glucose level was stopped. The patient was advised to continue the same drugs.

DAY 10: No new complaints were noted. Vitals were monitored regularly. The patient was advised to continue the same drugs. The pus culture report was received and it shows the growth of *Escherichia coli* was susceptible to amikacin and colistin. As per the physician's advice Inj. Amikacin-500mg OD was prescribed.

DAY 11: No new complaints were noted. Vitals were monitored regularly. The patient was advised to continue the same drugs. The physician recommended doing RFT, and Liver function test(LFT).

DAY 12: No new complaints were noted. Vitals were monitored regularly. The patient was advised to continue the same drugs.

DAY 13: No new complaints were noted. Vitals were monitored regularly. The patient was advised to continue the same drugs. As per the physician's advice T. Dalacin and T. Bifilac was stopped.

DAY 14: No new complaints were noted. Vitals were monitored regularly. The patient was advised to continue the same drugs and the patient is on ATT.

DAY 15: No new complaints were noted. Vitals were monitored regularly. The patient was advised to continue the same drugs and the patient is on ATT.

DAY 16: The patient is symptomatically better and discharged with adequate counselling.

To continue the discharge medication as per the physician's advice. Drugs: T. Bevon(BD), ATT (HRZE)-6 tablets, Ointment. Nadoxin, Resourced high protein powder 2 scoops in one glass of water.

Follow-up and outcomes: The patient was admitted for further management of S/P Right hemicolectomy and the patient was under ATT in view of tuberculosis cervical lymphadenopathy. Now the patient is better. He was instructed to use his

medication as prescribed, and both the patient and their caregiver were given the necessary counselling.

6. DISCUSSION

Goblet cell adenocarcinoma was earlier known as GCC or adenocarcinoid, as it has clinical manifestations of both adenocarcinoma and Neuroendocrine tumor (NET)[3]. These are, however, more aggressive than conventional well-differentiated appendiceal NETs and are categorized and staged as appendiceal adenocarcinomas[3]. There are no known risk factors, although some cases of goblet cell adenocarcinoma have been associated with bilharzia [4]. The tumors usually occur in equal percentages between men and women. But, one study has found a small female predominance, with a male-to-female ratio of 1:2.2[5]. The North American Neuroendocrine Tumor Society (NANETS) and the European Neuroendocrine Tumor Society (ENETS) both recommend right hemicolectomy for the management of GCC[6]. GCC is usually found incidentally during surgery in cases of acute appendicitis, representing 1% of appendectomies [7]. Therefore a histopathological report is necessary for all patients. A patient with diagnosed GCC after appendectomy should be instructed to an institution where all additional diagnostic procedures could be performed together with evaluation of the pathological report and radicalization of surgery [8]. Although no prospective clinical trials have been conducted, systemic chemotherapy, which is an effective adjuvant for gastrointestinal adenocarcinomas, has been extrapolated to patients with GCC of the appendix[9]. Individuals with advanced goblet cell tumors (stage III and IV disease, as well as select stage II) are treated with systemic chemotherapy regimens based on 5-fluorouracil, similar to those used in colorectal adenocarcinoma[10]. Palliative chemotherapy had a 60% disease control rate and a 14% partial response rate as measured by radiological imaging. Palliative chemotherapy had a median projected progression-free survival of 5.3 months[11]. Compared to carcinoid tumors, GCC is substantially more aggressive, and metastases have been reported in 8% to 20% of cases. Stage IV illness is a presenting symptom in some GCC patients. Even a localized illness might have a devastating outcome[12].

7. CONCLUSION

A rare disease condition known as goblet cell adenocarcinoma (GCC) of the appendix can manifest as persistent abdominal pain, acute appendicitis, or no symptoms at all. These tumours, which were once categorised as carcinoid tumours, exhibit adenomatous and neuroendocrine characteristics. The key surgical question is when the patient needs the appropriate hemicolectomy for additional staging and/or treatment after the diagnosis, which is typically made following an appendectomy. Accurate staging and pathological testing are crucial in the treatment of these uncommon malignancies since the prognosis for the tumours strongly related to the stage and grade of the tumour. More standardised treatment approaches might be developed as more information about the connection between grade, stage, and treatment tactics becomes available and can be examined.

Patient perspective

I had a variety of issues prior to admission, but the doctor and other medical professionals were able to diagnose and treat me appropriately, allowing me to recover quickly and relieve my symptoms. I'm pleased with the care I've received.

Informed Consent

The authors certify that they have obtained appropriate patient consent forms. In the form, the patient has given his consent for his clinical information to be reported. He understood that his name would not be published, and outstanding efforts will be made to conceal his identity.

The patient granted his explicit agreement for this case report to be published. We have avoided disclosing information that could identify the patient and all data have been released anonymously.

Authors' Contribution

Contributed to the idea and design of the study. Vinisha. M gathered the data and Vinisha. M drafted the manuscript, and all authors critically revised it for relevant intellectual content and approved the final version.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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