Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Digestive Surgery

Vipoma or Pancreatic Cholera: About a Case and Literature Review

Moufid Abdellah[1,2*], Iliass Maoni[1,2], Laila Dahbi Skali[1,2], Abdellatif Settaf[1,2]

[1]Digestive Surgical Department B, Ibn Sina University Hospital. Rabat, Morocco
[2]Faculty of Medicine and Pharmacy, Mohammed V University in Rabat, Morocco

DOI: 10.36347/sjmcr.2022.v10i09.002 | **Received:** 30.07.2022 | **Accepted:** 26.08.2022 | **Published:** 02.09.2022

***Corresponding author:** Moufid Abdellah
Digestive Surgical Department B, Ibn Sina University Hospital. Rabat, Morocco

Abstract **Case Report**

VIPoma is a pancreatic endocrine tumor, which ectopically secretes the vasoactive intestinal polypeptide (VIP), which causes watery diarrhea and hypokalemia that causes WDHA syndrome (Watery Diarrhea, Hypokalemia, Achlorhydria), also known as “pancreatic cholera” or "Verner-Morrison syndrome". A 38-year-old patient, admitted to the emergency department for diarrhea made from 12 to 20 watery stools / day and a significant alteration of the general condition, evolving for a month, with a heterogeneous tissue and cystic mass with calcification in the flank left, measuring 12 cm objective on ultrasound and computed tomography. The therapeutic gesture consisted of a monobloc resection of the tumor and the inferior border of the body of the pancreas. The histological study concluded with a well-differentiated neuroendocrine tumor G1.

Keywords: neuroendocrine tumor (NET), vasoactive intestinal peptide (VIP), Watery Diarrhea, Hypokalemia; Achlorhydria (WDHA) Diagnosis, treatment.

INTRODUCTION

The VIPoma is a very rare pathology with an incidence of one case per ten million. Despite its generally very typical clinical and biological presentation, its diagnosis can be delayed for multiple reasons, the most important of which are its rarity and its evolution by intermittent flare-ups [1].

Vipoma or Verner-Morrison syndrome is characterized by profuse watery diarrhea with hypokalaemia, and sometimes achlorhydria due to an endocrine tumor [2]. It is due to hypersecretion of vasoactive intestinal peptide (VIP) [3].

In more than 80% of cases, the tumor is pancreatic, often located in the body or the tail of the pancreas [3]. The location of the tumor is extra-pancreatic (usually retroperitoneal or mediastinal) in less than 10% of cases. Intestinal localization is very rare [4, 5].

Diagnosis is based on anatomopathologic analysis of the tumor and the blood VIP assay. Symptomatic treatment with somatostatin analogues is effective in treating diarrhea. A curative treatment by surgery can be proposed for a localized tumoral disease. For disseminated diseases, different therapeutic modalities exist and in some cases a multimodal approach is the mainstay treatment [6].

CASE REPORT

In this article, we report the case of a 38 years man, with no previous medical history.

The patient initially presented for a 1 month history of diarrhea consisting of 15 to 20 liquid stools / day, not responding to symptomatic management, associated with abundant bilious vomiting, not punctuated by meals. , without other associated digestive signs, this symptomatology motivated the patient to consult the emergency room of the Ibn Sina hospital in Rabat.

The general examination: on admission revealed a significant deterioration in the general condition of the patient with weight loss amounting to 10 kg in 1 month, the current weight being 45 kg, with signs of dehydration (thirst, hypotension at 80 /50 mmHg and skinfold).

Abdominal examination: found a large mass of rounded left flank, with irregular surface, mobile in relation to the superficial plane, fixed to the deep plane, the rest of the abdomen being normal. The lymph nodes

are free; the rest of the cardiovascular and pulmonary examinations were unremarkable.

The hydroelectrolyte balance was disturbed with:

- hypokalaemia at 2.99 mEq/l;
- Natremia was reduced to 133 mEq/l (N=136-145)
- hypochloremia at 108 mEq/l;
- Hypoprotidemia at 48 g/l;
- Alkaline reserve at 13 mEq/l
- Abdominal ultrasound showed:
- A heterogeneous tissue and cystic mass with calcifications on the left flank, measuring 12 cm and appearing independent of the spleen;
- The pancreas being poorly explored due to intestinal gas;
- Significant colonic distention with intestinal stasis;
- The liver, gallbladder and spleen are normal in appearance;
- A discrete effusion under hepatic is noted.

An esophago-gastro-duodenal fibroscopy:

Showed hiatal hernia without esophagitis and erythematous mucosa at fundal and antral level.

Total colonoscopy:

Found normal-appearing mucosa apart from extrinsic compression 2 cm from the anal margin. Multiple biopsies were performed.

Thoraco-abdomino-pelvic scanner with injection of contrast product (Figure 1 and 2):

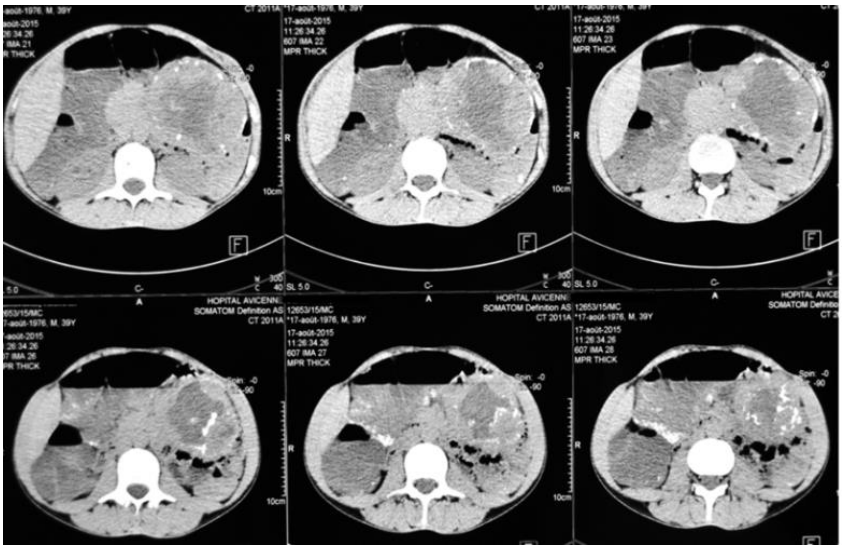

Figure 1: TDM sans injection de PDC

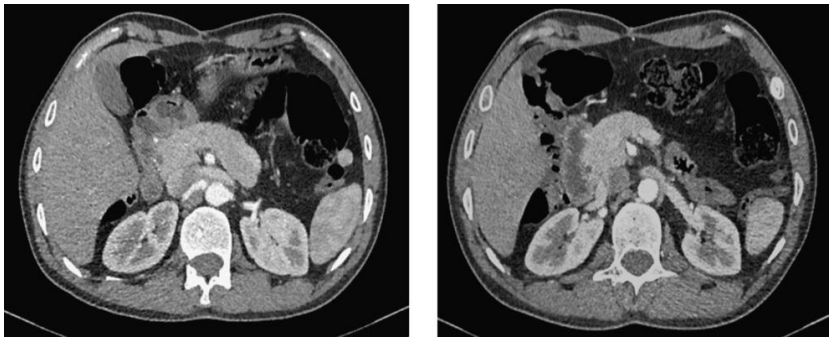

Figure 2: Abdominal CT with injection

Objectified the presence of:

- A voluminous heterogeneous intra-peritoneal mass of the left flank with central necrosis and peripheral calcification enhancing peripherally after injections. Measuring 11.6/9.8/14cm,
- It has intimate contact with the pancreas without a separation border,
- It pushes back the spleno-mesoraic trunk which remains permeable, and remains at a distance from the splenic artery,
- It pushes back the adjacent digestive loops,
- Liver of normal size, regular contours and homogeneous density,
- Absence of intra or retroperitoneal adenomegaly,
- Partial thrombosis of the IVC.

NB: The tumor markers were normal (Ag CA19.9=27.6 IU/ml and ACE=3.3ng/ml)

Surgical Resection:

The patient was operated on 3 weeks after his admission, with the diagnosis of a pancreatic VIPoma by A. Settaf and his team at the B surgery department at the Ibn Sina hospital in RABAT.

Surgical exploration discovered a large encapsulated polylobed tumor developing in the transverse mesocolon and in the root of the mesentery intimately attached to the superior mesenteric vein and artery (Figure 3), to the subhepatic IVC and to the colica media artery at the point of pancreatic departure (lower edge of the body of the pancreas), with significant dilation of the grelic and colonic loops, multiple ADPs of the mesentery and the mesocolon of an inflammatory appearance.

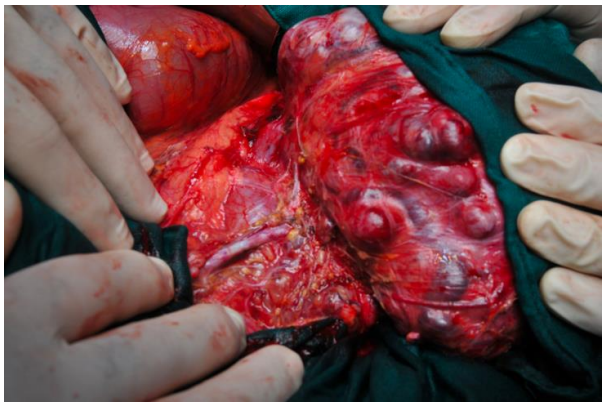

Figure 3: Vipome intraoperative image

The patient underwent a monobloc resection of the tumor and the lower part of the body of the pancreas (Figure 4).

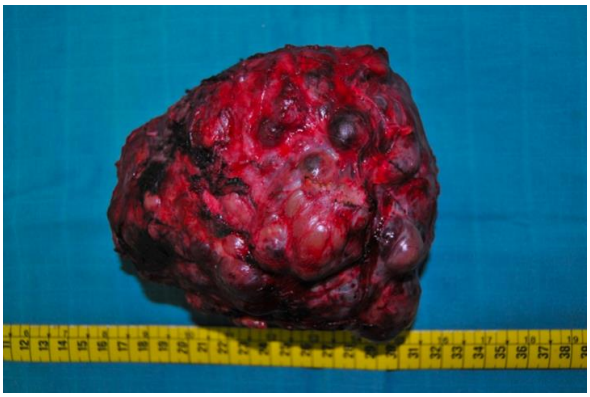

Figure 4: lumpectomy piece of pancreatic tumor

The anatomopathological study of the resection of the specimen showed:

- ON MACROSCOPY STUDY a tumor mass weighing 640g measuring 15/14/11cm, encapsulated and polyploid. When cut, we note the presence of a yellowish appearance with haemorrhagic and necrotic changes (Figure 5).

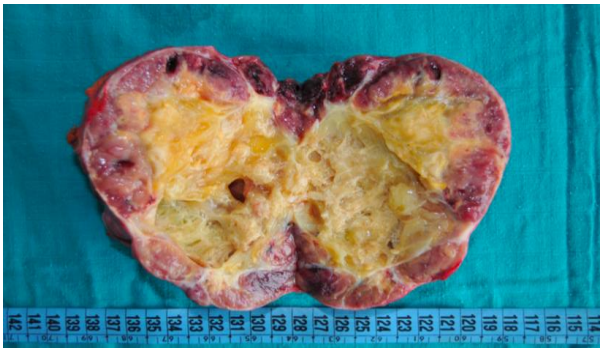

Figure 5: macroscopic appearance of the tumor

- A HISTOLOGICAL STUDY, the histological examination of the various samples taken from the tumor shows a tumoral proliferation made up of generally monomorphic cells with round and vesicular nuclei, a fine nucleolus and a basophilic cytoplasm. The figures of mitoses are estimated at 2 mitoses per 10 fields at high magnification. These cells are arranged in well-circumscribed lobules surrounded by a fibrovascular stroma. There are no vascular emboli or images of peri-nervous sheathing. There was no capsular rupture (Figure 6 and 7).

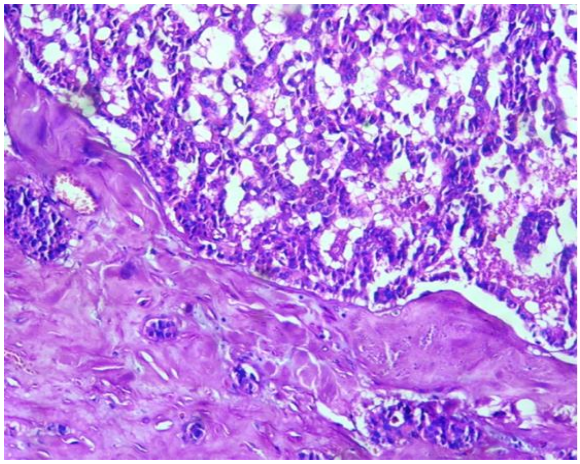

Figure 6: Cells Arranging into Well-shaped Lobules

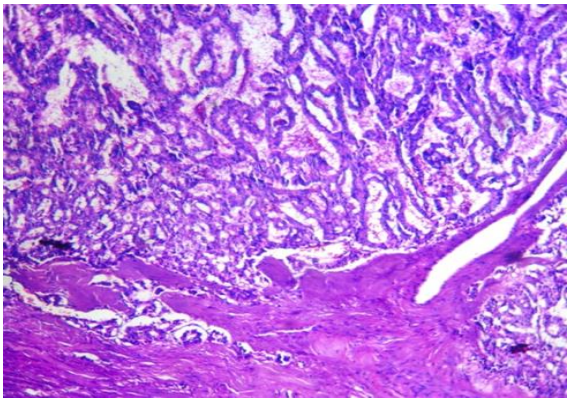

Figure 7: Fairly monomorphic tumor proliferation arranged in lobules. (Hemalin-eosin Gx 40)

In conclusion, it was a well-differentiated G1 neuroendocrine tumor with absence, vascular emboli, images of prenervous sheathing and capsular rupture.

The postoperative course was simple.

The patient is followed regularly in our training. He is clinically asymptomatic.

Control CT scans show a homogeneous pancreas, with no pancreatic nodular lesion (notably no nodular contrast uptake in the early arterial phase) (Figure 8).

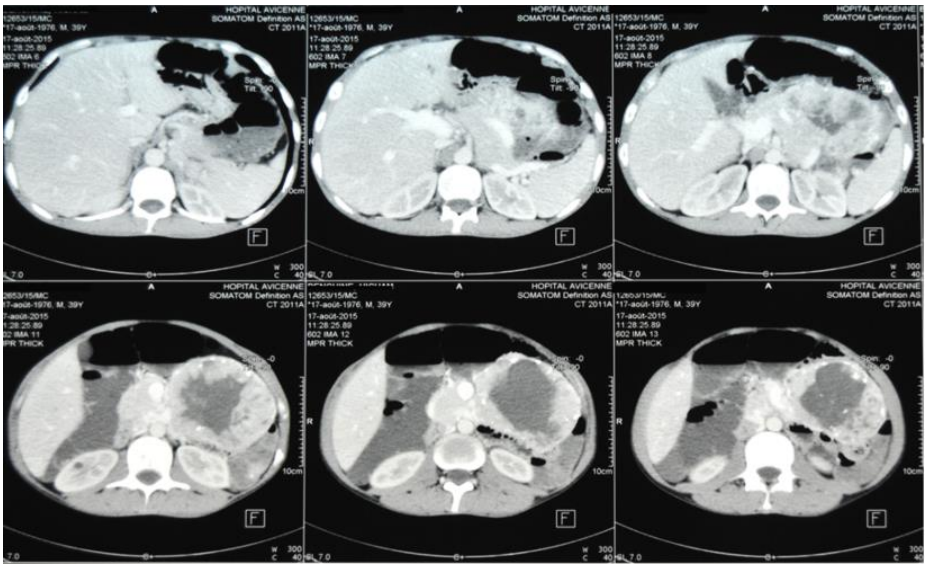

Figure 8: CT postoperative control

DISCUSSION AND ANALYSIS

The vipoma, or Verner-Morrison syndrome, authors of the first complete description of the "profuse diarrhea, hypokalemia and achlorhydria syndrome" or WDHA (waterydiarrhea hypokaliema achlorydria) or "pancreatic cholera", described in 1958, is manifested by secretory diarrhea of large volume, persistent during the test of fasting. Faecal osmolarity is close to that of plasma. Transit can be discreetly accelerated and hydroelectrolyte disorders are frequent [2].

The clinical picture essentially comprises secretory diarrhea, persistent despite fasting, with a volume always greater than 700 mL/day. The most severe cases are often diagnosed in intensive care with diarrhea greater than 10 L/d and massive potassium losses [1]. Severe hypokalaemia can induce.

Cardiac, renal or neurological complications, sometimes with paralysis and coma, or even death. Hypokalemia is associated with metabolic acidosis, by leakage of bicarbonates into the faecal volume. Rapid weight loss is the rule, as observed in our patient who lost more than 10 kg in 1 month.

Flushes or urticarial reactions may be associated[1].

This type of endocrine tumor secretes vasoactive intestinal peptide (VIP). It concerns the D1 cells of the islets of Langerhans of the pancreas, with a character of malignancy in 50 to 75% of cases, and is accompanied by lymph node metastases and/or hepatic at the time of diagnosis in one out of two cases. Most commonly, these are pancreatic tumors but can also be caused by pheochromocytoma, ganglioneuroma, neuroblastoma, bronchial cancer or medullary thyroid cancer [1].

VIP is a peptide which is a neurotransmitter, vasodilator and regulator of digestive motility. It also regulates intestinal secretions (it stimulates the elimination of water) and pancreatic (it inhibits the production of gastric juice). This peptide is present in the wall of the duodenum, but also in the wall of the entire digestive tract and in the pancreas [3].

Epidemiologically, the VIPoma occurs at any age, with, however, a peak in the fourth decade, and this is the case of the patient we are presenting in this observation, who is 38 years old. But cases of even younger patients have been reported: for example, the case of the 22-year-old patient described by A. Szymanowicz *et al.*, [1], also the case of a 15-year-old child has been described [4], and even, more recently, that of a 14-month-old child [7]. the VIPoma has also been described in older patients, such as the case of the 57-year-old patient reported by Monika LECORGUILLÉ, *et al.*, [8].

This tumor may be part of a multiple endocrine neoplasia of type 1 (MEN 1) in association with a parathyroid and pituitary adenoma, in a small percentage of cases: 5 to 15% [5].

Clinically and pathophysiologically, VIP causes abundant secretion of water and electrolytes in the jejunum and ileum, responsible for profuse diarrhea with hypokalaemia exceeding colonic reabsorption capacities [8].

Hypokalemia is often increased by hyperaldosteronism secondary to hypovolemia caused by profuse diarrhea [1], which is the main symptom, constant, evolving in flare-ups, with more or less complete remissions, the number of stools per day often exceeds ten stools per day as is the case with our patient (with 15 to 20 liquid stools per day), as well as 22% of patients who have had a VIPoma, however an average number of stools between five to ten stools per day has been reported in 68% of patients [1].

It is a hydroelectrolyte-type diarrhea, with a stool volume varying from 2 to 10 L/d (hence the name "pancreatic cholera") and without any sign of malabsorption [9].

These main symptoms are found in several series, including one of 11 cases [10] and another of 15 patients [11].

The diagnosis of VIPoma is often only made several weeks to several months after the onset of symptoms, on average 30 months later [1]. In the case presented, the diagnosis could be made very quickly within a few days of admission. and at the end of the 3rd week his admission pays him was operated.

Keep in mind that constant hypokalemia, often profound, creates a risk of serious conduction and heart rhythm disorders. It can also be revealed by pseudomyopathy. The risks associated with profound hypokalaemia lead to emergency management of patients, and sometimes even in intensive care [12].

Without treatment, the evolution is in flares, with a risk of cardiac arrest by hypokalaemia, nephropathy, severe dehydration. The management of these patients and the control of diarrhea make it possible to obtain prolonged survival, of the order of several years.

The treatment of the tumor itself involves surgery. Surgical excision should be discussed as soon as possible. Even in the case of metastases, tumor surgery with or without metastasectomy should be considered, because excision, even incomplete, can reduce or even stop the diarrhea [1]. In the case presented, the patient underwent resection en bloc of the tumor mass and the lower part of the body of the pancreas. with simple postoperative follow-up and a good clinical evolution.

The VIPoma is a seat tumor most often pancreatic (80 to 98% of cases), as a rule unique and often larger than 2 cm [1], in our patient tumor mass weighing 640g measuring 15/14/11cm.

Octreotide, a somatostatin analogue, is the first-line symptomatic treatment. It controls diarrhea in 80% of cases, with disappearance of the latter in 12 hours in 85% of cases. In case of symptoms moderate, a dose of 100 to 150 mg subcutaneously every eight hours is started with a weekly reassessment, the dose can be increased by 50 to 100 mg per injection. In the event of very severe symptoms from the outset, a bolus of 100 mg intravenously, then 50 mg/h, is started. When the dose of ocreotide controlling the symptoms is reached, the switch to a depot analogue can then be discussed, allowing an intramuscular injection every 14 days.

In case of poor control of symptoms despite somatostatin and/or in case of painful or progressive liver metastases, treatment with chemotherapy (adriamycin + streptozotocin) is discussed, if the clinical condition allows it, with the aim of increasing the duration and quality of survival. Interferon, alone or in combination with octreotide, has obtained interesting results in small series, which need to be confirmed in larger series [13].

For VIPomas, the 5-year survival is estimated at 56.6% in the event of metastases and 94.4% without metastases [14].

CONCLUSION

The VIPoma is a very rare pathology, the diagnosis of which is often late and generally revealed by chronic diarrhea resistant to treatment, confirmed by the dosage of VIP and calcitonin. Octreotide is the first-line symptomatic treatment; nevertheless, surgery remains the reference treatment in order to have a more favorable evolution and more survival chances.

BIBLIOGRAPHY

1. Szymanowicza, A., Eyraudb, P. Y., & Neyrona, M. J. (2011). When to think of diagnostic vipomas? *Immuno-analyse et biologie spécialisée*, 26, 212-216.
2. Verner, J. V., & Morrison, A. B. (1958). Islet cell tumor and a syndrome of refractory watery diarrhea and hypokalemia. *The American journal of medicine*, *25*(3), 374-380.
3. Mignon, M., Cadiot, G., Vallot, T., & Ruszniewski, P. (1996). Diagnostic des tumeurs neuroendocrines digestives. *Tumeurs de l'œsophage, tumeurs endocrines, hépatologie pédiatrique. Progrès en hépatogastroentérologie. Paris: Doin*, 116-42.

4. Solcia, E., Capella, C., Riva, C., Rindi, G., & Polak, J. M. (1988). The Morphology and Neuroendocrine Profile of Pancreatic Epithelial VIPomas and Extrapancreatic, VIP-Producing, Neurogenic Tumors a. *Annals of the New York Academy of Sciences*, *527*(1), 508-517.
5. Cellier, C., Yaghi, C., Cuillerier, E., Siauve, N., Berger, A., Carnot, F., ... & Landi, B. (2000). Metastatic jejunal VIPoma: beneficial effect of combination therapy with interferon-α and 5-fluorouracil. *The American journal of gastroenterology*, *95*(1), 289-293.
6. https://www.revmed.ch/RMS/2018/RMS-N-592/VIPome-etiologie-rare-d-une-diarrhee-hypokaliemiante.
7. Riebel, T., Luck, W., Scheer, I., & Degenhardt, P. (2002). Sonographic detection of a" VIPoma" in a small child with intractable gastroenteritis. *Ultraschall in der Medizin (Stuttgart, Germany: 1980)*, *23*(4), 264-266.
8. Lecorguillé, M., Hammel, P., Couvelard, A., O'Toole, D., Ratouis, A., Belghiti, J., ... & Ruszniewski, P. (2004). Jejunal localization of a vipoma. *Clinical and Biological Gastroenterology*, *28* (8-9), 797-800.
9. http://www.discussion-diagnostique.com/showthread.php?p =2085.
10. Li, J. T., Peng, S. Y., Liu, Y. B., Fang, H. Q., Wu, Y. L., Wang, X. B., ... & Ji, C. (2004). Diagnosis and treatment of vasoactive intestinal peptide-secreting-tumors: one case report and 15 years review in China. *Zhonghua wai ke za zhi [Chinese Journal of Surgery]*, *42*(9), 524-527.
11. Nikou, G. C., Toubanakis, C., Nikolaou, P., Giannatou, E., Safioleas, M., Mallas, E., & Polyzos, A. (2005). VIPomas: an update in diagnosis and management in a series of 11 patients. *Hepato-gastroenterology*, *52*(64), 1259-1265.
12. http://www.nejm.org/doi/full/10.1056/NEJMicm1005144.
13. http://www.snfge.org/01-Bibliotheque/0F-Cas-cliniques/cascliniques/ casclinique1199g .asp.
14. Soga, J., & Yakuwa, Y. (1998). Vipoma/diarrheogenic syndrome: a statistical evaluation of 241 reported cases. *Journal of experimental & clinical cancer research: CR*, *17*(4), 389-400.