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Da Costa (J.)

ON

THE MORBID ANATOMY AND SYMPTOMS

OF

CANCER OF THE PANCREAS.

BY

J. DA COSTA, M.D.

[Extracted from the Proceedings of the Pathological Society of Philadelphia.]

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CANCER OF THE PANCREAS.

Dr. Da Costa presented the following paper on *Cancer of the Pancreas.*—At a former meeting of the Society I exhibited a specimen of primary cancer of the pancreas, and was requested to report more fully on the occurrence of this affection, and on the symptoms by which it is marked. In accordance with this wish, I beg leave to present this paper, accompanied by a table of thirty-seven cases, derived from various sources, and including two brought before the Society.

I have not endeavored to swell the number by instances adduced from the older writers; I have not included in the subjoined table the three cases of Morgagni, the five cited by Bonetus, or the thirty-six observations on scirrhus of the pancreas, which Lieutaud has collected; nor have I referred to the oft-mentioned, but exceedingly unsatisfactory accounts given by Heberden; but I have attempted to bring together the cases of pancreatic disease which have been published by authors still living, or not long deceased, and such as seemed to have been undoubtedly cancer of the organ.

The great difficulty, indeed, in studying cancer of the pancreas is, that, while the older writers have most evidently confounded all chronic alterations of the pancreas under the title of scirrhus, many of the later phy-

sicians have taken the ground that cancer does not affect this gland, that all the observations, certainly those of primary cancer, are erroneous, and have brought about a skepticism with reference to the whole subject, which, in connection with the rarity with which the organ is carefully inspected in post-mortem examinations, has tended much to retard our knowledge of its morbid states. Yet there are (leaving out the descriptions of the older writers) a sufficient number of well-authenticated cases of disease of the pancreas on record, not only to prove that the gland is frequently the seat of cancer, but also that, in all probability, cancer is the most common of its chronic affections. These very cases, too, demonstrate that the malignant diseases of the organ are not always, as has been affirmed, secondary, but that cancer may commence in the pancreas and be confined to it, or else extend from it to surrounding textures. (*See cases recorded in the Table.*)

When the pancreas becomes cancerous the disease usually attacks its right extremity. The whole gland may be equally affected, or only the middle portion and the splenic end suffer (*Case* 31;) but this is not frequent. For the most part the cancerous change takes place mainly, if not solely, at the head, the other portions remaining healthy, becoming indurated, or undergoing a fatty degeneration. The disease shows a great tendency to spread to the adjacent lymphatic glands, and a cancer of the pancreas often in reality consists of the transformed head of the organ, so closely blended with these glands, as to have occasioned an apparently uniform tumor of considerable size, which, by pressure, produces obstruction of the ducts leading from the liver, or changes in structure in the surrounding tissues.

Scirrhus and encephaloid are both met with in the pancreas, and run the same course as in other organs. Colloid deposits, too, have been described as occurring. (Dr. Wilks; see Table, *Case* 32.) The natural structures disappear entirely, and the microscope exhibits nothing but abnormal cells, or else the cancer may be infiltrated through the regular gland-tissue.

The form and size of the pancreas are materially modified by the cancerous disease, especially is the size. Enlargement almost invariably occurs, and the organ may exceed three or four times its natural bulk. Duponchel* relates the case of a soldier who died at Cadiz after a long and obscure disease of the abdomen, and in whom a large tumor, of the size of a child's head, consisting of a brownish matter resembling coagulated blood, and of a broken-down cerebral-like substance, was found occupying the place of the pancreas, of the glandular structure of which not a ves-

* Bulletin de la Societé Med. d'Emulat. Mars, 1824.

tige remained. A mass of similar size occurred in the case of a woman described by Caspar.*

The pancreatic duct often becomes implicated in the disease. Sometimes it remains pervious, but at others it is entirely obliterated. It may be pervious in the diseased mass, or where it opens into the intestine, while at the more healthy portions of the gland it is obliterated. Again, the reverse takes place; it permits the pancreatic secretion to flow, until it reaches the diseased portion of the pancreas, but here and at its mouth it is closed. Cruvelhier† met with what appeared to be a cyst in the pancreas, but which, on closer examination, was proved to be the much-dilated pancreatic duct, the duodenal extremity of which was strongly compressed by a scirrhous degeneration of the head of the pancreas. A still more remarkable case happened a few years ago in the clinical wards of Professor Bamberger.‡ The duct, by pressure at a part of its course, was dilated into a cyst, containing a yellowish-red fluid, of the size of a man's fist. True cysts, however, occur in cancer of the organ; their walls are thin and translucent; their contents may be a bloody serum, (*Case* 19,) or blood mixed with broken down tissue. (Duponchel, *loc. cit.*)

The effects of pancreatic cancer show themselves chiefly on the adjacent organs. Secondary cancers in the brain are not described, nor do the thoracic viscera become often affected. Albers mentions a case in which the lungs were filled with small, yellowish cancerous deposits; Bennett (Clinical Lectures) one, in which gelatinous-looking masses in the lung proved, when microscopically examined, to be cancer; and it is not improbable that the "pulmonary consumption" in Sewall's case (*Case* 3) was cancer of the lung, as it did not come on until a long time after the pancreatic disease was fully developed. The stomach, intestine, and liver, from their proximity to the pancreas, are the organs which suffer most. The *stomach* may be perfectly healthy, or it may be adherent to the pancreatic tumor and thickened, especially near the pyloric extremity. The thickening is due to a simple increase of the normal structure, or to a cancerous deposit in the coats of the organ. The pyloric orifice may be narrowed, and so pressed upon by the tumor as to be nearly obliterated, (*Case* 2.) The mucous membrane of the stomach is found in a state of softening, or of thickening, but for the most part it is perfectly healthy. The viscus may be much distended, or contracted. Its inner surface has been observed to be covered with a dark slimy fluid, or to contain blood, or even as much as a gill of pus, derived (*Case* 22)

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* Caspar's Wochenschrifft, No. 9; quoted in Canstatt's Jahresbericht, 1844.

† Essai sur l'Anat. Pathol., tome i., p. 286, 1816.

‡ Vol. vi. Virchow's Path. and Therap., p. 667.

from a perforation of its coats, through which the pancreatic mass communicated with the stomach. Such cases of perforation have been several times noticed. The perforation occurs at the seat at which the stomach adheres to the morbid mass; the rupture may be at one, or at several places. (Hasenöhl.)

The *duodenum* presents the same changes as are met with in the stomach. It may be adherent to the pancreas, thickened and contracted, or distended; its calibre may be nearly obliterated by pressure, (see *Case* 23,) its mucous membrane softened, and one or several ulcerations communicating with the pancreas exist in it. The other parts of the intestine generally remain healthy; yet they, too, have been noted to have been greatly contracted, to have been ulcerated, (*Case* 15,) to have contained (*Case* 23) small cancerous masses, or to have been nearly filled with blood. The colon has been observed to be much contracted, and its coats thickened and covered with small patches of lymph, (*Cases* 17 and 18.) There seems, indeed, to be a very great tendency to fibrinous deposits, and to an increase and thickening of the cellular textures of the body, as witnessed in the intestines, and also in a cirrhosed state of the liver.

The *liver* is very variously affected. It remains healthy, becomes the seat of cancerous deposits, or exhibits abnormal changes with reference to size, density, and color. One of the most frequent appearances is to find it enlarged, and of a peculiar greenish hue. Dr. Bright, in an oft-quoted case, describes it as resembling "dark greenstone porphyry." It may be softer than natural in consistency, but is frequently denser, owing, in some instances, to a thickening of its cellular tissue. Well-marked examples of cirrhosis (*Cases* 26 and 34) have also been observed. In common with all the other organs in the body, it is at times pale and devoid of blood, (*Cases* 7 and 29.) The biliary ducts may be normal, or have their calibre greatly increased. The hepatic duct, as well as the cystic and common duct, are at times in some parts nearly obliterated, while in others they are much dilated; or one duct is dilated and the other compressed. Again, both the hepatic and cystic duct may be expanded, and the common duct be barely pervious, (*Case* 9.) In a case described by King,* the hepatic and choledoch duct above the seat of their compression were dilated to the size of the ileum of an infant. Todd† had a young girl under his care, in whom the hepatic and common duct were so distended as to form a distinct swelling in the epigastric region, which was tapped during life, and was found to contain several quarts of bile. The cystic duct alone may be closed; but the duct which most frequently suffers is the

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* Medico-Chirurg. Review, 1827, (See Table, *Case* 1.)

† Dublin Hospital Reports, vol. i.

common duct. It is evident, however, that the exact spot of its occlusion, or the state above the seat of compression of it, or of the cystic and hepatic duct, will depend much upon the shape and size of the pancreatic tumor.

The gall-bladder, in cases of compression of any of the ducts connected with the biliary function, is enlarged and greatly distended. Its coats have been observed to be much thickened, and its mucous membrane slightly ulcerated, (*Case* 23.) Its contents are a dark, inky bile, or an inodorous, colorless fluid, (*Cases* 1 and 15,) which King (*loc. cit.*) tells us has no resemblance in chemical composition to bile.

The other structures situated in the abdomen do not often become affected in consequence of a pancreatic cancer. The omentum may be implicated in the disease; the spleen remains healthy. The supra-renal capsules were involved in a case described by Dr. Bright.* The diseased mass may press upon the nerves and narrow the aorta, as in a case quoted by Mondière from Portal.† In another instance, the latter author has observed an aneurism to have been produced by the pressure of a scirrhous tumor of the pancreas.

The *age* and *sex* of those suffering from cancer of the pancreas may be seen from the following table of thirty-seven cases:—

Age.	Males.	Females.
14 to 22	–	2
24 to 28	2	1
33 to 36	3	–
40 to 46	4	2
48 to 58	8	4
58 to 68	2	4
68 to 78	–	2
Not stated	3	–
	22	15

These figures certainly show that cancer of the pancreas conforms, in respect to age, to the general laws of cancerous disease. It will be perceived that the majority of cases occurred after the fortieth year. The youngest (*Case* 21) was a girl 14 years of age, the eldest a woman of 76. Rokitansky has mentioned an instance of the pancreas having been found scirrhous at birth. With reference to sex, the majority of cases are met with in men. Of the fifteen female cases, two occurred in colored women. Dr. Walshe's statements concerning sex do not agree with my deductions. He thinks the disease is more frequent in the female.‡

* Med-Chirurg. Transactions, vol. xviii., *Case* 7. It may not be without interest to state that in this case no bronzy color of the skin is mentioned.

† Traité de l'Apoplexie.

‡ Walshe on Cancer, p. 321.

The exact *duration* of the affection it is not possible to ascertain. Like all chronic diseases, its commencement cannot be accurately fixed. It would seem that, although it may last for several years, and occasion prolonged suffering, it may also run a more rapid course. It is, indeed, in not a few of the cases specially noted, that the patient had been, up to a certain time,—not a year before his death,—in excellent health. In several instances, no marked symptoms appeared until four or five months before death, and a case has been reported in which the disease seemingly commenced with acute symptoms, and ran on, in eleven weeks, to a fatal termination, (*Case* 36.) In one patient it was ushered in by jaundice, in another by a febrile attack, (*Case* 7.) In one case it is recorded that it followed a sudden disappearance of tumefaction of the parotid and submaxilliary glands, (*Case* 9,) in another, (*Case* 28,) that it was produced by continual pressure against the stomach. Death usually takes place from gradual exhaustion. But it may occur after hemorrhage, or by the development of cancer in other parts of the body, or with the symptoms of an adynamic fever, (*Case* 8.) The patient mentioned by Dr. Campbell (see *Case* 22) expired suddenly, after a sound like something bursting. The stomach had been perforated, and was found to contain a large quantity of pus.

The *symptoms* of cancer of the pancreas are not always the same; they are mostly produced by the effects of the disease on other organs. The affections of the pancreas themselves give rise to few, if any, special symptoms; to none which are constant.

Local Signs.—Amid the local signs, one of the most important is the existence of a swelling, or a tumor. In thirteen cases out of the thirty-seven recorded below, a tumor is specially noticed; in one, there was fulness at the epigastrium; and in one at the left hypochondrium; in one fullness at the epigastrium, with resistance to touch; in one, an indistinct hardness at the pit of the stomach, and in another, at the right side of the abdomen, making eighteen cases in which the pancreas had given rise to perceptible signs of its enlargement. The situation of the tumor is mostly noted as in the epigastric region, or between this and the umbilicus. It may extend into the right hypochondrium, or into the left, or (*Case* 22) into both. It may be fixed or movable, (*Case* 35,) with limits not definable, or capable of being accurately determined by the touch and by percussion. In some instances it is painful on pressure; in others not. In several very interesting cases it was accompanied by pulsation and a blowing sound, and might thus have been readily mistaken for an aneurism. In Dr. Battersby's patient (*Case* 17) there was an apparent systole and diastole; the pulsation ceased in two months, but the bruit and the tumor remained. In the patients of Sandwith, Fletcher, Tessier, and McClurg, (*Cases* 20, 24,

27, and 28,) the pulsation continued as a permanent phenomenon. Both pulsation and blowing sound may be accounted for by the tumor lying across, and compressing the abdominal aorta. In Dr. Battersby's case, however, the blowing sound may have been produced by the deposits which covered the inner coat of the abdominal aorta.

An epigastric tumor of a different nature may be caused by disease of the pancreas, and lead to singular errors of diagnosis. Petit* operated on a case of what he thought to be a strangulated hernia of the stomach or colon. The tumor was soft and compressible, and accompanied by vomiting and hiccough. The operation demonstrated that it was the stomach, pressed forward by an enlarged pancreas; whether cancerous or not, was not determined. In another case already cited, (See *Case* 21,) an epigastric tumor was not the cancerous pancreas itself, but a dilatation of the hepatic and choledoch duct produced by it.

Pain is a very constant symptom: it is mentioned in thirty-two out of thirty-seven cases. The seat of the pain is, in most instances, the epigastrium. In twenty of these thirty-two cases it seems to have been there most marked, although it was not always confined to this seat, but extended to the right side, or to the left, or to the back, or to the umbilicus and lower part of the abdomen. In one case it was an intermitting pain confined to the lower part of the abdomen. In two or three others it extended equally over the whole abdomen. In four cases it had its seat of greatest intensity in the back, but in one of these there was also deep-seated epigastric pain, a constant pain in the lower part of the abdomen, and pains extending to the arms. In another case they radiated to the left half of the chest, and to the abdomen. In three cases the pain was mainly felt in the sides, and extended into the back.

The character of the pain is very various. In the majority of the cases it is severe, in some excruciating, and in paroxysms of several days duration. It is, at times, much like colic; or again it is described by the patient as "a deathly distress," (*Case* 29,) or (*Case* 19) as a "hot sensation extending into the back." In some cases it is very slight, more of an undefined uneasiness (*Case* 9) than actual pain. In Andral's patient at La Pitié,† the pains were like blows of a hammer, or like the perforating dart of a dagger, and increased at night. The pancreatic tumor was found, on post-mortem examination, to have compressed the nervous plexus which spreads around the abdominal aorta. The pain is not, as a rule, increased by taking food, for this is only noted in very few of the cases, (see 18 and 29;) on the other hand, there are instances

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* Discours sur la Medecine du Cœur: Lyons, 1806.

† Lancette Française, No. 16.

in which it is specially stated that it was not. The pain may become duller (*Case* 32) as the disease advances; it may or may not be increased on pressure. It may be suddenly augmented by turning in bed from side to side, (*Case* 14.) In not a few cases is it increased by the erect position, and hence we find patients seeking relief by stooping, and curving their body forward so as to relax the abdominal parietes, (see *Cases* 2, 3, 5, 13, 28.)

Vomiting is a symptom, the frequency and importance of which it is difficult to determine, for it is obvious that in those cases in which much disease of the liver or cancer of the stomach were superinduced, it cannot be established in how far the symptom may be placed in connection with the disease of the pancreas. In the thirty-seven cases below noted, vomiting is mentioned in twenty-one; but in two of these it was a transitory phenomenon, lasting a very short time, and occasioned in one, by eating indigestible food. In one case it came on after an attack of hepatitis, which happened seventeen years before any symptoms of pancreatic disease developed themselves; in three others, it occurred in patients in whom considerable disease of the liver and stomach was, after death, detected. Leaving out these six cases, we still find it in fifteen. In nearly all of them it was a late symptom, and in only a few constant. In one patient (*Case* 20) it did not appear until six weeks, and in another not until ten days before death, (*Case* 23,) although in him the pylorus was found greatly contracted. The narrowed state of the pylorus, caused by the pancreatic disease, or the pressure of the tumor on the stomach will explain the vomiting in several instances. In a case mentioned by Dr. Henry Lee,* at the Royal Medico-Chirurgical Society, in which vomiting was among the symptoms, the stomach was perforated by the head of the pancreas, which had produced ulceration by pressure. In another case, (22,) in which ulceration of the stomach occurred, nausea and vomiting became prominent symptoms as the pancreatic tumor increased. The vomited matter consists either of the food that is swallowed (in many cases there is neither nausea nor vomiting until shortly after food be taken) or else (*Case* 18) of a substance like bran and water, of a bilious fluid, (*Case* 9,) of fluid of a glairy character, or of a watery, colorless fluid, (*Cases* 29 and 37;) or, again, the ejection may contain blood, (*Cases* 9 and 16.) The watery fluid that is sometimes discharged may be very abundant. It is thought by some to be the pancreatic secretion itself, and not to be derived from the stomach at all; others regard it as an increased salivary flow. The vomited matter is stated in one case, (23,) in which the pylorus was greatly contracted, to have been like coffee-

* Lancet, 1842.

grounds. But the coffee-ground vomit, so often seen in cancer of the stomach, is evidently here but exceptionally met with. In the case kindly communicated to me by Dr. Harris, there was in the vomit a distinct blackish sediment; this was proved to be stove coal, of which the patient was in the habit of consuming daily about half a pint, eating it in the form of cinder.

The condition of the *bowels* is usually that of constipation. In thirty-four cases constipation is mentioned in nineteen; in four the bowels were regular; in three diarrhœa occurred as a late symptom; one patient passed blood and pus by stools; two others, at times blood; in the other cases diarrhœa existed, or alternated with constipation. The fæces are mostly hard, and vary in color according to the presence or absence of the biliary secretion. Hemorrhage into the bowels, which has been observed as occuring in several cases, will explain the black, bloody stools sometimes voided. Dr. Bright has directed attention to the presence of *fatty* stools in cases of pancreatic cancer which he has published (*loc. cit.;*) they were noticed in three cases. But he is far from having affirmed, as subsequent writers wish us to believe, that they are of constant occurrence. He himself speaks of cases of scirrhous pancreas without fatty discharge, and, although he thinks that it is connected with "disease probably malignant of that part of the pancreas which is near to the duodenum, and ulceration of the duodenum itself," he does not, by any means, lay this down as positive, since, at the end of his paper, he suggests that the symptom might be diagnostic "of the *nature* of the diseased action rather than of its seat." Many observers have since brought forward instances of fatty discharges in which no disease of the pancreas existed, and, on the other hand, to the cases of Bright, but few others have been added in which these discharges were associated with affections of this gland.* A desire to bring the physiological teachings of the present day in connection with morbid anatomy may have prompted many to accord so much importance to the occurrence of fatty stools in pancreatic disease. But pathological anatomy seems to contradict the assertion that the pancreatic secretion possesses alone the power to emulsify, and to render the fatty matters fit for absorption. It can certainly not be the only agent. The cases of Dr. Bright would lead rather to the conclusion that, for fat not to be acted upon, the duodenal secretions must also be vitiated, and the flow of healthy bile interfered with. For

* Dr. Eisemann, Viertel Jahreschrifft für die praktische, Heilk, 1853, (quoted in the Med. Examiner, 1855,) speaks of several cases of pancreatic disease, with abundant fatty discharge, but in the case which came under his own care there was none. In some of the instances quoted the oily evacuations had ceased, although the pancreas was so indurated as to have rendered the performance of its function impossible.

in all of them there were also ulcers in the intestine, and the ducts through which the bile flows were compressed or nearly obliterated.

Jaundice constitutes, in a large proportion of cases, one of the most prominent symptoms; it is persistent, and resists all treatment. In most instances it does not appear until the pancreas has enlarged considerably, in other words, not until late in the disease; but in a few cases it is noted among the early signs. It usually increases as the disease progresses, and the skin becomes of a deep-yellow, or of a greenish hue, (*Cases* 1 and 36.)

Dyspeptic symptoms are a class of symptoms which are found in pancreatic cancer, in a very varying degree. From the vague manner in which the term is made to embrace different states, it is difficult to ascertain the exact nature of these symptoms in the reported cases. They are noted in twenty-five out of thirty-seven cases, some as of early, some as of late occurrence; but of these twenty-five cases there are several in which the signs of indigestion had been evidently present at a time long anterior to the other symptoms of the disease, and probably to the disease itself. *Acid eructations* were troublesome in five cases; in two cases there was much pain after eating; in five cases there was considerable flatulency, incontrollable in one, but not dependent upon taking food, (*Case* 30.) A feeling of weight and oppression at the stomach are noted in three cases; of sinking, relieved by food, in one; of great irritability of the stomach in two. Constant *thirst* is mentioned in six cases, but in one of these diabetes existed.

The *appetite* fluctuates in every conceivable way; it frequently remains good even to the last; it is sometimes capricious, although the patient (*Case* 7) can take a great deal of food; anorexia is noted in seven out of the twenty-five cases in which dyspeptic symptoms are mentioned. *Hiccough* was in two cases (28 and 34) an exceedingly annoying incident. The *tongue* is not often alluded to; from which it may be inferred that it does not often present any peculiarity. It is stated in four cases to have been dry; in two, it was covered with a yellowish coat; in one, with a brown fur; it remained clean throughout in one, and its cleanness and great moisture are especially commented on in two interesting cases (17 and 18.) The *ptyalism*, which sometimes takes place, will give rise to this macerated appearance of the tongue; but, although it may be both very abundant and exceedingly offensive,* the occurrence of this salivary discharge is not frequent, and its importance in diagnosis, therefore, less than some authors state it be.

Dropsy is met with in the advanced stages of pancreatic cancer. It was present in sixteen out of thirty-seven cases; yet, although many of

*. Mondière. Archives Générales de Medecine, 1836.

these were complicated with hepatic derangement, in none was it very marked; in most, ascites was present; in some, ascites and anasarca; in one case, marked anasarca of the upper and lower extremities, (*Case* 17,) and only slight ascites; and in another, (27,) œdema of the feet was seen disappearing and reappearing.

Emaciation and *debility* are both very striking and constant symptoms. The emaciation is great and progressive. In a case, reported by Sandwith, the patient was so emaciated that the spine could be distinctly traced through the abdominal parietes. Debility usually goes hand in hand with the perceptible loss of flesh, but it may not be as extreme; and, again, it is sometimes prominent among the earlier symptoms. In exceptional cases the loss of flesh is slight, and debility not marked. The *countenance* is usually pallid, and has a distressed look; the features become pinched, and the face is expressive of suffering and anxiety. The skin is sallow, of a bloodless hue, or jaundiced, or more rarely it is straw-colored, (*Case* 28.) The *pulse* is not often noted, when it is, it is stated to have been quicker than in health. A tendency to hemorrhage must also be alluded to; blood was lost from the stomach, bowels, and lungs, in several cases.

The main symptoms, then, of pancreatic cancer, are a tumor in the epigastric region, pain there, or in the back, constipation, progressive emaciation and debility, and obstinate jaundice and occasional vomiting, as the disease advances. The diagnosis is possible, if these symptoms be present, and provided we are able to exclude with certainty the diseases of the stomach and of the liver. I shall not attempt to decide in how far the symptoms may be shared by other chronic affections of the pancreas. Tubercle of that organ is rare, and is associated with tubercle of the lung or of the brain.* Chronic pancreatitis gives rise to many of the same phenomena; but, taking the cases which I have met with in pursuing this inquiry as my standard, I should say that those signs which indicate a tumor, and the symptoms which show its marked growth and pressure upon other organs, are not often present; that pain does not occur to such a marked degree; that the falling off in health is very gradual, and the disease slower of progress, and also that the bowels are not as constipated, but are, on the contrary, more frequently relaxed. It is, however, fair to state, that Dr. Claessen, in a work on Diseases of the Pancreas, (Cologne, 1842,) remarks that constipation in chronic pancreatitis is urgent and enduring.

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* Würtemberg. Med. Correspond. Blatt.

Case.	By whom and where reported.	Age and Sex.	Duration.	Local Signs.	Pain.	Vomiting.	State of Bowels.	Jaundice.	Emaciation and Debility.	Dropsy.	Dyspeptic Symptoms.	Other Symptoms, and Remarks.	Post-mortem Appearances.
1	King. Medico-Chirurg. Review, 1827; from a case under the care of Dupuytren.	45; male.	Not mentioned; but upwards of four months.	Not mentioned.	Not mentioned.	Not mentioned.	Not mentioned, except that during the day before death, stools of black and bloody appearance passed involuntarily.	Very great (skin of a greenish-yellow color) occurred upwards of four months before death.	Emaciation moderate; debility not mentioned; (excepting as noticed after an operation for cataract; then, also, tendency to syncope, in the perpendicular position.)	None.	Not mentioned.	Cataract of some years' standing.	Pancreas was large; a portion of it forming, with a cluster of scirrhous glands, a tumor, by which the common duct was much compressed, but its mouth remained pervious. The pancreatic duct was free; so was the cystic duct. The hepatic and choledoch duct, above the seat of their compression, were distended to the size of the ileum of an infant, and filled with gas. The gall-bladder, besides gas, contained an inodorous, colorless fluid, which had no resemblance, in chemical composition, to bile. Liver was large and green. Large intestines contained coagulated blood.
2	Sewall. Med. and Physical Journal, vol. xxxi. p. 96.	27; male.	About one year.	Tumor in epigastrium.	Severe, deep-seated, epigastric pain, increased by the erect position; hence patient always in a curved position of the body.	Almost constant.	Constipated.	Not mentioned.	Both great.	Very slight ascites; (post-mortem.)	Acid eructations; great irritability of stomach.	Disease preceded by tumefaction of parotid and submaxillary glands, which suddenly subsided.	Pancreas was nearly three times its natural size; hard throughout, irregular, and unyielding. Its right extremity pressed firmly on the duodenum, and on the small extremity of stomach, thereby nearly obliterating the pyloric orifice. Other organs healthy.
3	Sewall. *Ib.*	"A young man."	A few years.	Not mentioned.	Deep-seated, epigastric pain, increased by the erect position; hence always a curved position.	Present.	Not mentioned.	Not mentioned.	Great emaciation; debility not noted.	Slight ascites; no œdema.	Great acidity; no food except milk could be retained on stomach, yet appetite remained good.	A pulmonary consumption came on two months before death.	Pancreas—only one of the abdominal viscera, which was diseased, was enlarged, and scirrhous, particularly its right extremity, which embraced the duodenum, and pressed so firmly on the pylorus that its orifice would scarcely admit of the introduction of a common-sized catheter. Stomach and intestines were greatly contracted. Liver healthy. Lungs hard and unyielding, and in many places ulcerated, and affected with tubercle.

4	Martland. Edinb. Med. and Surg. Journal, 1825.	60; female.	Six months.	Hard tumor, about the size of the palm of the hand, at scrobiculus cordis and right side, below the margin of the ribs; very painful on pressure, and enlarging toward the end of the complaint.	In and about the region of the tumor.	Not mentioned.	Regular; stools very white.	Most intense; came on a few weeks after first manifestations of the disease.	Great and progressive debility, and extreme emaciation.	Not mentioned.	Anorexia; great thirst; furred and dry tongue.	Pulse between 80 and 100.	Pancreas. The head formed a scirrhous tumor about the size of a hen's egg. In this tumor was lodged the ductus communis, which was almost impervious, and was still more obstructed by a small calculus. The cystic and hepatic ducts were considerably dilated. Gall-bladder much enlarged. Liver studded with small, distinct tubera, which were confluent opposite the gall-bladder.
5	Abernethy. In a lecture delivered at St. Bartholomew's Hospital. Lancet, April 21st, 1827.	"A man of advanced age."	Not mentioned.	None.	Pain in the epigastric region, gradually extending, and increased by pressure, by erect posture; hence patient constantly stooping forward. He had also to be propped up in bed, to lessen pressure.	Not mentioned.	Constipated.	None; (countenance had a distressed appearance, even from commencement, but was never jaundiced.)	Increasing debility.	Not mentioned.	Pain after eating.		Pancreas in a state of complete disorganization and ulceration from end to end. State of other organs not mentioned.
6	Abercrombie. "Diseases of the Stomach," p. 412. Am. ed.	56; male.	Two years.	Not mentioned.	Pain in the left hypochondrium, extending into back.	None.	Regular.	Occurred only a few weeks before death.	Both present; died gradually exhausted.	Not mentioned.	Symptoms of indigestion present.		Pancreas, in parts, hard; in others soft, and composed of yellowish and white matter. Mass attached to spine. Liver enlarged and soft. Other organs healthy.
7	Abercrombie. *Ib.*	35; male.	Eighteen months.	Not mentioned.	Undefined uneasiness in epigastric region.	As a late and transitory symptom.	Sometimes constipation, at others diarrhœa.	None; (countenance remarkably pale.)	Both present to a marked degree, and progressive.	Not mentioned.	Present; appetite capricious; took a good deal of food.	Strong action of heart; throbbing in head; disease commenced with a febrile attack; frequent perspirations at night.	Pancreas considerably enlarged, and of nearly cartilaginous hardness, except some spots, which were soft, with the appearance of medullary sarcoma. Pylorus thicker than normal, and adherent to pancreas. Other organs healthy, but very devoid of blood.

Case	By whom and where reported.	Age and Sex.	Duration.	Local Signs.	Pain.	Vomiting.	State of Bowels.	Jaundice.	Emaciation and Debility.	Dropsy.	Dyspeptic Symptoms.	Other Symptoms, and Remarks.	Post-mortem Appearances.
8	Andral. Archives Générales de Medicine, 1831; or *Lancette franc.*, T. Y. No. 216.	54; female.	Four months; previous health good.	Fullness in left hypochondrium, but no tumor perceptible.	Intense pains in dorsal region, extending to the left half of the chest, or through abdominal region; more frequent at night, lasting from several hours to several days at the time.	Not mentioned.	Diarrhœa as a very late symptom.	None.	Not mentioned; (face pale, expressive of suffering.)	None.	Extreme disgust for taking food; tongue had a yellowish coat.	Insomnia; febrile signs; patient died with all the symptoms of an adynamic fever.	Pancreas enormously enlarged, and transformed into a tumor, which seemed a combination of scirrhus, encephaloid, and tubercle. (?) This mass compressed the aorta, and the plexus of nerves which surrounds it. Other organs healthy. A sanguineous effusion into the pericardium.
9	Becourt. Quoted by Andral, Pathol. Interne. Tome ii. p. 283.	45; male.	Four months.	Pain on pressure at a small point between umbilicus and curvature of stomach; heat over stomach.	Above umbilicus; abdominal cramps; at times violent pains over stomach, extending over whole abdomen.	Nausea; also vomiting, in last two months, bilious, sometimes sanguinolent ejections.	Costive; hard stools, at times white.	Occurred early, and became intense; slight jaundice, with feeling of oppression at the epigastrium, were indeed the first symptoms.	Great debility; also emaciation.	Slight ascites.	Great thirst; appetite good; cardialgia flatulency.	At times passive hemorrhage.	Pancreas—head scirrhous, rest converted into fat; liver of an olive-color, and containing a few cancerous spots. Gall-bladder distended, containing very dark bile; hepatic and cystic ducts enlarged; common duct very much compressed, and barely pervious. Stomach healthy.
10	Percival. (Transact. of College of Physic., Ireland,) Vol. ii. p. 132.	"Middle aged man."	Three months.	Epigastrium distended; tumor felt protruding from middle.	Not mentioned.	Bilious vomiting.	Blood and pus passed by stools.	Present.	Emaciation and much debility.	Anasarca toward the end.		"Disordered secret. of urine."	Liver "much diseased." Pancreas scirrhous, contained a considerable abscess. Ductus com. choled. closed, in the parts adjacent to the pancreas. Gall-bladder full; cystic duct pervious.

11	Dr. Bright's Cases. Vol. xviii. Med.-Chir. Transact., 1833. Case I.	49; male.	One year.	None.	Pain in loins.	Not mentioned.	Stools copious and light-colored; for the last two months fæces contained a yellowish, fatty matter, and bowels were much relaxed.	Present; commenced six months after first symptoms of disease.	Great debility, and emaciation, continually increasing.	Slight ascites; legs very slightly œdematous.	Great thirst and appetite.	Marked enlargement of liver; frequent urination; diabetes; acute pleurisy two weeks before death.	Pancreas hard and cartilaginous to the touch; of a bright-yellow color; its head formed, with the surrounding glands, a hard, globular mass; at junction of pancreas with duodenum ulcers had taken place. Liver resembled dark greenstone porphyry, and contained hard, circumscribed masses; its ducts were enlarged; common duct dilated, but terminated by a *cul-de-sac* in diseased part of pancreas. Signs of jaundice pervaded many structures; serum olive-colored; coating of fibrine on pleura.
12	Dr. Bright. Case II. *Ib.*	50; female.	Not ascertained; certainly not less than seven or eight months, perhaps some years.	None.	No pain on pressure; some pain at lower part of abdomen, relieved by pressure, and occurring only at intervals.	Retching and vomiting for seventeen years; increased much within the seven months before death.	Rather costive; evacuations whitish; a few dark motions like pitch; a week before death large coagula of blood; while under observation for three months, fatty matter noticed in her dejections.	Very great; gradually increasing; did not occur as a permanent symptom until four or five months before death.	Progressive and great debility; general emaciation, cheeks much sunken, but some fat on abdomen.	None.	Not very marked.	Good health until seven or eight months before death. Seventeen years ago severe hepatitis; she became very drowsy during the last days of her life.	Pancreas hard and cartilaginous; its head enlarged and glued to duodenum, and communicating through an ulcerated spot with this. Common gall-duct pervious, but evidently had been compressed; biliary ducts distended. Liver cancerous. Lungs healthy, but firmly bound down posteriorly by strong, adhesive bands.

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13	Dr. Bright. *Ib.* Case III.	21; female.	Decided illness for two months.	Indistinct hardness on right side of abdomen.	No pain mentioned.	Not mentioned.	Rather bound, but subsequently evacuations were copious, fatty, and thin.	Slight; increased towards close of life.	Emaciation not great, but great debility; restlessness.	Anasarca; also some ascites.	Not mentioned.	Out of health for two years; slight cough; preferred lying in a raised position.	Pancreas—hard mass near its head; another near the spleen; intervening portion seemed more healthy; masses of yellow color. Ulcers in the intestine; some ulcers communicating with glands in the meso-colon; mesenteric glands and supra-renal capsules diseased; also, bronchial glands; slight deposit of round size at apex of lung. Liver enlarged, of a dark-olive color; hepatic and cystic duct enlarged, but common duct becoming much constricted before entering duodenum.
14	Dr. Bright. *Ib.* Case VI.	76; female.	Thirteen months; good health before attack.	None.	Severe pain in the sides, extending to the back; pain also immediately under right mamma; acute pain in turning from left to right side; pain in the side became very fixed.	Vomiting not mentioned; nausea as a late symptom.	Constipated at the latter portion of the disease; clay-colored stools.	Jaundice only latterly present.	Great and increasing lassitude and debility.	Among the late symptoms anasarca; also some ascites.	Weight and distension of stomach.	Palpitation of the heart.	Pancreas large and in a scirrhous condition, involving the ductus choledochus in the diseased structure. The common duct was dilated up to its termination, where it was found completely obliterated; near the duodenum it formed a complete *cul-de-sac*. Liver small, but gorged with bile. Gall-bladder enormously distended. Duodenum thickened, and somewhat contracted.

15	Dr. Bright. *Ib.* Case VII.	35; male.	Thirteen months.	Tumor above umbilicus, reaching not quite to pit of stomach.	Not mentioned.	Not mentioned.	Constipated; stools became, subsequently, clay-colored and yeast-like; a few days before death very dark.	As a late symptom.	Both present to a marked degree; at first greater debility than emaciation.	Not present.	Not mentioned.	A tumor below umbilicus.	Pancreas—malignant disease towards its middle; its splenic and hepatic heads not infiltrated; its duct pervious. Its middle portion was involved and continuous with a large, movable mass, connected with the lower tumor seen during life. This tumor consisted of masses, which surrounded the aorta and iliacs, and, passing up the spine, involved the pancreas and renal capsules. Upper tumor was a movable mass in the omentum. A few scirrhous tubera in liver. Gall-bladder distended. Orifice of cystic duct very nearly closed; hepatic duct and common duct both somewhat contracted; colorless fluid in gall-bladder and cystic duct. Small, malignant tumor attached to surface of the heart. Pancreatic duct seemed obstructed in healthy part of pancreas; in other parts pervious.
16	Dr. Bright. *Ib.* Case VIII.	43; male.	Ten months.	Indistinct hardness at pit of stomach.	At pit of stomach.	Towards end of life; severe vomiting of a dark-colored fluid shortly before death.	Relaxed at first; clay-colored stools, then varying in color.	Jaundice appearing suddenly and early; became persistent.	Both markedly present; debility as an early symptom.	Not present.	Flatulency.	Appetite unusually great; itching over body; frequent drowsiness; tendency to hemorrhage.	Pancreas not enlarged, but its head formed a large yellow mass, with neighboring absorbent gland; pancreatic duct greatly enlarged. Liver full of yellow spots, of varying size; liver enlarged; all the ducts involved in cancerous masses; hepatic duct enlarged, and filled with colorless fluid. Stomach full of dark, grumous fluid. Serum in chest of dark-yellow color. Ulcer in duodenum.

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17	Dr. Battersby. Dublin Medical Journal, Vol. xxv. 1844. Case I.	About 58; female.	Sick twenty-five months; disease marked for thirteen months.	Deep-seated pulsating tumor in epigastrium, having a well-marked *bruit de soufflet*; the pulsation ceased in two months, but the bruit and the tumor remained; fullness in epigastrium.	Severe pains in back, extending to arms; then uneasiness and deep-seated pain in the epigastrium, increased by pressure; also, constant pain in the lower part of abdomen.	None.	Very sluggish; passages attended with violent straining and intense distress; fæces generally watery, deficient in bile.	Present, but not to a great degree.	Both present; emaciation extreme.	Slight ascites; very marked anasarca of upper and lower extremities, which increased much at later portion of disease.	Eructations; appetite nearly gone, but this not until last month of disease; no thirst; tongue pale and clean.	Ptyalism; mouth always full of saliva; dysphagia.	Pancreas enlarged and hard throughout; every trace of its natural structure had disappeared. At its lower edge existed a thin cyst, about the size of a walnut. Duodenum extremely contracted, and adherent to pancreas; pancreatic duct was pervious for about an inch only from the duodenum. Liver small, of a dark-gray color, and dense; owing, apparently, to a thickening of its cellular tissue. The common duct and hepatic duct were not interrupted; colon and cardiac orifice of stomach much contracted; cellular tissue increased and hard. Mesenteric vessels and nerves involved in the scirrhous mass; gastro-hepatic omentum dense, hard, and thickened; aorta diseased by deposits in its entire course through the abdomen.
18	Dr. Battersby. *Ib.* Case II.	24; male.	Four years.	None.	Severe pain in stomach, coming on generally after meals; subsided after vomiting; sometimes appearing in the middle of the night.	Present; sometimes of dark fluid, sometimes like bran and water.	Severe constipation; diarrhœa at end of life.	Not mentioned; (skin sallow.)	Emaciation; features pinched; debility not mentioned.	Ascites and anasarca, both as late symptoms.		Cleanness and great moisture of tongue.	Pancreas dense and cartilaginous; confounded somewhat with surrounding structures. Liver healthy. Stomach and intestines distended. The sub-mucous coat of ileum and colon thickened; also covered with small patches of closely-adhering lymph.

19	Crompton. Birmingham Path. Society; in Prov. Med. Journal, Dec. 1842.	60; male.	Upwards of two years.	None.	Constant pain below the ensiform cartilage; sometimes "a hot sensation," sometimes pain extending into the back.	None, until last month, then only for two days, after eating indigestible food.	Tolerably regular; at times somewhat relaxed; dejections of good color.	Slight and not permanent.	Extreme and progressive emaciation; (a peculiar pallid appearance of countenance noted.)	None.	Appetite irregular; suffered more after a full meal; mouth generally clammy; tongue constantly covered with a brown fur at the base, and down the centre.	Pulse somewhat quick; skin dry and harsh.	Pancreas hard as cartilage; its left side distended by a large cyst, containing a bloody fluid. Many of the mesenteric glands enlarged and hardened. Liver small; scirrhous tubercles scattered through its substance; cystic duct obliterated by a deposit. A few calcareous deposits in lungs. Other organs healthy.
20	Sandwith. Ed. Med. and Surg. Journ. Vol. xvi. p. 380.	67; female.	Not mentioned.	Pulsation, left side, below cartilage of false ribs.	Continual pain in epigastrium, extending to hypochondrium; at times most intense; increased on pressure.	Not until six weeks before death, then very constant and distressing; everything she swallowed was rejected.	Costive.	None. (Complexion sallow.)	Both; eyes had a peculiar expression of anxiety; emaciation was extreme; spine could be traced through abdominal parietes.	Not mentioned.	Loss of appetite.	Great agitation, tore the bedclothes, etc.	Pancreas presented usual signs of scirrhus. Stomach erythematous. Splenic artery imbedded in scirrhous matter.
21	Todd. Dublin Hospital Reports. Vol. i.	14; female.	Some months.	Tense swelling in epigastric region, extending to right hypochondrium; it was tapped, and a greenish fluid escaped.	In epigastrium; increased on pressure; at times severe and very acute.	Not mentioned.	Not mentioned.	Deep orange-colored skin.	Great debility and emaciation.	Ascites and anasarca.	Present.	Spasms and convulsions; had had, for a long time, pains in the abdomen; development of disease followed; a fever, with relapses.	Pancreas; head and glands around it converted into a hard, solid mass; its duct obliterated. Stomach somewhat thickened. Liver healthy; cystic duct dilated, but at its juncture with hepatic it was impervious; remaining portion natural.

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22	Henry F. Campbell. South. Med. and Surgical Journal. Vol. v. 1849.	72; female.	Not mentioned.	Tumor like large orange in epigastrium, extending into both hypochondriac regions.	Pain in epigastrium; two months previous to death became very distressing.	Nausea and vomiting as tumor increased.	Not mentioned.	Not mentioned.	Both to a high degree.	None.	Present.	Expired suddenly, after sound like something bursting.	Pancreas much enlarged; altered in structure, excepting at left extremity; tumor at the right extremity, with pus on surface, and ruptured entrance, which communicated with a cavity in its interior, and with a rupture in the rear of the stomach. This viscus, containing a gill of pus, was softened towards pyloric extremity. At the greater extremity thickening of its coats. Duodenum, near pancreas, was softened. Liver small, and very dense, of darker hue. Gall-bladder much distended; cystic duct distended; duct com. choled. occluded by tumefaction and induration of duodenum. Wursungian duct only seen at left extremity, and here its calibre obliterated.
23	Dr. Greene. Dublin Journal of Medical Science. Vol. xxv. 1844.	Male; age not stated.	Nine months.	None, save fullness in epigastrium.	Pain in epigastric region, and over umbilicus, sometimes like colic.	None, except ten days before death, then coffee-ground matter.	Constipated.	Jaundice intense.	Not mentioned.	None.	Anorexia; thirst; acid eructations; signs of indigestion were the earliest symptoms.	A week before his death delirium; died in that state.	Pancreas.—Its head was bound down, with the ascending and descending colon, into a cancerous mass, with which the duodenum was also connected; cystic and hepatic duct obstructed by the malignant growth. Mucous coat of gall-bladder ulcerated in several spots. Cancerous masses in several parts of the small intestines. Stomach dilated; pylorus hard, thick, and firm, and its calibre greatly contracted.

24	Dr. Fletcher. Birmingham Path. Society: Jan. 20th, 1844. Prov. Med. Journal.	52; female.	Not mentioned; (under treatment for two months.)	Hardness and increased space of dullness, extending from the right hypochondrium into the epigastrium; pulsations felt there and in the left hypogastric region; and a distinct *bruit de soufflet* attended each impulse when the patient was in the recumbent position.	Intense, excruciating pain in region of stomach; increased on pressure; pain extended to right hypochondrium, and down to the umbilicus.	Vomiting generally in about half an hour after taking food; constant nausea.	Costive; scanty evacuations twice or three times daily in an advanced stage of the disease.	Not mentioned.	Extreme emaciation.	Ascites; bowels above very tympanitic.	Irritable stomach; great thirst; tongue dry and red.	The whole surface of abdomen was tender; pulse small and feeble, 120 per minute.	Pancreas.—Entire organ carcinomatous; its head very much enlarged, wrapping around the duodenum, and inclosing that intestine in its diseased structure, so as to produce a stricture just below the pylorus. Liver studded with carcinomatous tubercles; other organs were healthy.
25	Albers. Rheim. Corresp. Blatt, 1843; or, Canstatt's Jahresbericht, 1849. Vol. ii.	50; male.	Upwards of one year; (previously in good health.)	Fullness of epigastric region; a tumor with an irregular surface felt there, and in the right hypochondriac region; and a pear-shaped, movable body between twelfth rib and the anterior superior spinous process of the ileum.	Above umbilicus, and extending to right hypochondrium; subsequently pain in the left side, extending to ensiform cartilage, and to umbilicus; also, dorsal pain; pain not constant; also, pain over spinous processes of all lumbar vertebræ; at least on pressure; (these vertebræ were very prominent.	As a late symptom; matter vomited; yellowish-green, then dark matter.	Soft, white stools; very late in the disease black stools.	Present, and increased; occurred as an early symptom.	Present.	Not mentioned.	Eructations of a bitter fluid; also, clear, yellowish, green, and acid fluid expectorated; appetite good; very fetid breath.	Dullness on percussion on left side of chest; disposition to lie on the back; salivation for three months, after taking ℈ij. of calomel; urine dark color, containing cholesterine; passed with some difficulty.	Pancreas.—Its head hard and degenerated, forming a yellowish tumor, which, microscopically examined, showed irregular cells, with several nuclei. Similar cells are seen in the small, yellowish deposits in the left lung, and in the liver; pancreatic duct pervious, and could be traced to the middle of the gland. Gall-bladder much dilated. The entrance of the common duct could not be found. Pancreas adherent to duodenum, and at seat of adhesion an ulcer in the latter.

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26	Caspar. Caspar's Wochenschrifft, No. 9; quoted in Canstatt's Bericht, 1844; 3.	40; female.	Not mentioned.	Tumor could be felt, whose edge extended along median line to umbilicus.	Not mentioned.	Present mainly after taking food.	At times stools containing dark blood	Present.	Present.	Ascites as disease advanced.	None.	Vomiting commenced after delivery.	Pancreas, the size of a child's head, and in a state of scirrhous degeneration; cirrhosis of the liver; gall-bladder much distended.
27	Tessier, Journal de Medic. de Lyon, Nov., 1847.	33; male.	Not mentioned; (appeared, when first seen, in tolerably good health.)	Hard, pulsating tumor extending from ensiform cartilage to umbilicus; abdomen prominent. In the last stages abdomen constantly rising, and simultaneously so with pulse, each movement accompanied by a sound audible some distance from patient, (glou-glou.)	Present; when the œdema appeared there was violent pain extending to the feet.	Not mentioned.	Constipation.	Doubtful; pale-yellowish complexion.	Not mentioned; but great debility is noted as perceived suddenly two days before death.	Œdema of feet, disappearing and reappearing.	Not mentioned.	Pulse became small; face altered; extremeties cold two days before death.	Pancreas.—Whole of the organ converted into a cancerous mass, which compressed the aorta; a few mesenteric glands around the tumor cancerous. In the pancreas a few softened spots. Other organs were healthy, except the stomach, which was much dilated and filled with fluids. (This supposed to be the cause of the gurgling "glou-glou" sound.)

28	J. R. McClurg. Medical Examiner, Phil., 1851.	50; male.	Eight months.	Fullness in epigastric region, and to the touch the feel of a thickened condition; decided pulsation in the epigastric region; great tenderness there on pressure.	Pain commenced early, and was constant and very intense; sometimes most in the region of the stomach, then in the left side, or in the back; no pain in the right side, excepting a month or two before death.	None.	Costive.	None; (skin dry, of a straw color; countenance had a wild, anxious look.)	Progressive debility and emaciation.	Ascites and anasarca four weeks before death.	Anorexia; feeling of oppression at epigastrium; tongue covered with a thick, yellow coat.	Great restlessness; patient unable to lie in bed; also inability to stand erect; bent forward so as to relax abdominal muscles; at one time fever; pulse, 90. In the last month of the disease hiccough became an almost constant symptom. The patient thought his disease had been produced by having carried, two years previous to his last sickness, a load of coal in a tub, which pressed hard against the stomach, giving him pain at the time, and ever after some uneasiness or a tired feeling at the epigastrium.	Pancreas.—The whole of the organ was converted into a cancerous mass, which also embraced the smaller curvature of the stomach, surrounded the solar plexus, the aorta, and accompanying vessels, and adhered to the diaphragm, the liver, the arch of the colon, and omentum. Liver was enlarged, hard, and "tuburculated;" gall-bladder healthy.

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29	Dr. Kneeland. New York Journal of Medicine. Vol. xi. 1853.	64; male.	About eighteen months.	Hard tumefaction in epigastric region; not tender on pressure.	"Constant deathly distress," confined principally to epigastric region; increased by nourishment; suffering, indeed, much greater when he did not reject whatever he swallowed.	Present, and as an early symptom; matter vomited colorless; of a saltish taste.	Constipated.	No jaundice.	Extreme emaciation; (skin of a dingy, pale, bloodless hue.)	Not mentioned.	Continual vomiting of food; occasional vomiting and sinking sensation about the stomach were very early symptoms.		Pancreas enlarged and hard; adherent to stomach; converted, with the portion where it was adherent, into one mass of scirrhus, of a uniformly dull or yellowish-white color, and of a homogeneous structure. Liver, spleen, and kidneys anæmic in appearance. The mucous membrane of the stomach had retained its normal structure; the viscus was much contracted.
30	John S. Antrum. Association Med. Journal, 1855.	52; female.	"Several years."	Indistinct fullness in epigastric region, in the later stages; also, indistinct dullness on percussion; at one time a circumscribed spot, an inch square, below the edge of the liver, tender on deep pressure, was noticed.	Continuous epigastric pain, as a very early symptom; at first relieved by change of air and tonics; later more severe, and extending to the right groin, and to the back.	Present, but rarely, and only as the disease advanced, and then appeared to arise from distension by wind; never a black appearance of vomit.	Rather irregular and irritable; stools natural, except when deficient in bile; nothing like fat passed, not even when cod-liver oil was taken.	Never marked; skin gradually became slightly yellow and muddy.	Increasing debility and emaciation; had had attacks of debility for several years.	Not mentioned.	None. Food readily digested; uncontrollable flatulence, but not dependent on taking food; pain in the earlier stages relieved by taking food; seemed more a sensation of exhaustion.	Abdomen became, in the last stages, tympanitic; right thigh became swollen, and femoral vein tender in several parts of its course. Death took place from inanition.	Pancreas.—Its head enlarged to the size of a goose egg, by a cancerous deposit in its tissue. Similar deposits in the smaller end, and in neighboring lymphatic glands. Pancreas not adherent. Pyloric end of stomach, near pancreas, thickened by a deposit of cancer, apparently colloid; deposit ceased abruptly at the pylorus; dark, black, slimy mucus, as is often ejected in cases of cancer of the stomach, covered the pylorus. Other viscera, as far as examined, healthy.
31	Haldane. Month. Journal of Med. Science, Edinb., 1854.	Male; age not stated.	Seven months or upwards.	None.	Not mentioned.	Not mentioned.	Costive; clay-colored stools during jaundice; previously dark and scybalous; not fatty.	Intense, but occurring as a late symptom.	Present, and both continually increasing.	No anasarca; but ascites, with much tympanitis.	For seven months.	Gradually, before death, sank into asthenic coma.	Pancreas cancerous, (by microscope) but disease was not at the head of the organ, which was healthy. Retrograde cancer-spots in liver, and in the mesentery. Gall-bladder much distended; ductus communis compressed, and involved in the disease.

32	Dr. Wilks. Transactions of the Pathol. Society of London, Vol. vi. 1855.	56; male.	Six months.	Abdomen felt rigid in the last stages of the disease, but no tumor perceptible.	In middle of back and in abdomen, varying in intensity; very severe at first; became dull, and lessened much as disease advanced.	None.	Obstinately constipated, but stools throughout normal.	None.	Emaciation steady and progressive; became extreme; debility not specially mentioned.	Slight ascites, as a late symptom.	Appetite bad, but not capricious.	Patient, when first seen, did not appear very ill.	Pancreas changed into a cancerous mass; in part fibrous and hard, in part gelatiniform. The head still retained some healthy structure. The duct, close to the duodenum, was pervious, but quite impervious when running through the diseased gland. The pancreas was closely adherent to the duodenum and stomach. A few of the gastric absorbent glands were partly infiltrated with morbid matter, but they were not connected with the diseased pancreas. The omentum was drawn up, and converted into a hard cancer. In it, and in the pancreas, were found well-marked cancer-cells. No cancer existed in other parts of the body.
33	Dr. Da Costa. Proceed. of Path. Society of Philadelphia, p. 8; or, North Am. Med.-Chir. Review, January, 1858.	45; male.	Seven months.	None.	Pain across epigastrium, but not severe; extending to back.	Occasional, and not at commencement of disease.	Constipated; dejections are clay-colored, not fatty.	Very marked; occurred rather early in the disease, and continually increased.	Both present, but neither to a marked degree.	None.	Very slight symptoms of indigestion.	Hemorrhage from the lungs.	Pancreas enlarged; its head and surrounding glands converted into a hard tumor, which, microscopically examined, proved to be a cancer; middle portion in a state of fatty degeneration. Pancreatic duct pervious. Liver enlarged, green and mottled, with irregular and large pigment masses in its structure; hepatic and common duct much compressed; cystic duct dilated; a few cancer-spots in liver; other organs healthy. All the cellular tissues were extremely yellow. The lower lobes of the lungs were voluminous and engorged; the seat of the hemorrhage could not be detected.

Case	By whom and where reported.	Age and Sex.	Duration.	Local Signs.	Pain.	Vomiting.	State of Bowels.	Jaundice.	Emaciation and Debility.	Dropsy.	Dyspeptic Symptoms.	Other Symptoms, and Remarks.	Post-mortem Appearances.
34	Dr. Agnew. Proc. of Path. Society, p. 84, or North Am. Med.-Chirg. Rev., July, 1858.	56; male.	One year; previously in good health.	None.	Pains of flying character, passing through abdomen to the right shoulder; no pain on pressure; feeling of fullness and weight in epigastrium.	Present; matter rejected was of a glairy character, and very offensive. Nausea was among the earliest symptoms, but vomiting occurred only as the case progressed.	Very torpid; evacuations clay-colored; sometimes greenish.	Very slight, if any; (countenance pale and bloodless; color of skin indicating a cancerous cachexia.)	Both markedly present; weight, when first attacked, 250 lbs.; at time of death, 120 lbs.	None.	Signs of indigestion were the first marked symptoms; nausea; flatulency; a feeling of fullness over the stomach.	Troublesome hiccough; he was a good liver, and had, for a long time, had slight dyspeptic symptoms, which became, rather suddenly, much aggravated; at the time they became so he was much depressed in spirits.	Pancreas enlarged to four times its size; its structure replaced by cancerous masses; also a deposit of cancer at cardiac orifice of stomach, (both examined with the microscope;) liver cirrhosed; the ducts pervious; kidneys also seemed granular. The enlarged mass of the pancreas pressed on the thoracic duct.
35	Dr. Bennett. "Clinical Lectures," p. 449.	50; male.	One year; previously in good health.	Tumor in epigastrium perceived by patient himself three months and a half before death; tumor very painful on pressure; could be moved upwards and to the right. It was distinctly felt, two inches below the ensiform cartilage, and three above umbilicus.	Pain severe and constant; is epigastric, but not increased on taking food.	Present; occurred at first occasionally; later, became constant; he vomited matter resembling coffee-grounds, mostly one hour to an hour and a half after meals.	Not mentioned.	None.	Both present and progressive.	None.	No appetite; pyrosis as a very early symptom; food could not be retained on stomach; thirst only occasionally; tongue and gums dry.	Tenderness over liver; pulse small and weak; slept but little; urine normal; prolonged expiration, feeble and harsh respiratory murmur in lungs.	Pancreas.—Its head involved with the surrounding mesenteric glands, and a mass compressing the pyloric extremity of the stomach in a cancerous tumor. This mass was seated in the smaller curvature, and projected into the stomach. The remaining portions of the pancreas were healthy, but the duct was obliterated. A cyst in the right kidney; liver felt hard and nodulated; lung presented gelatinous-looking masses, which, microscopically examined, proved to be cancer.

36	Dr. Bennett. "Clinical Lectures," p. 462.	50; male.	Eleven weeks.	None.	Gnawing pain in epigastrium, (was the first symptom of disease;) also acute grinding pain in the region of the liver.	No vomiting; food excited nausea.	Constipated stools of a lead color; at times dark-green.	Yellow tinge of skin appeared four weeks after first symptoms; jaundice steadily increased; finally skin became of a dark, green tint.	Emaciation not mentioned, but progressive exhaustion.	Not mentioned.	Loss of appetite; tongue slightly furred, moist, but became dry; considerable thirst; food excited nausea.	Two weeks after he felt gnawing pain, was overworked; drowsiness, loss of appetite, anorexia appeared, soon followed by jaundice.	Pancreas—right extremity converted into a cancerous tumor, rest of the organ indurated; contained a few small cysts. The portion of the common duct which passed through the tumor barely admitted a small probe. Behind this constriction the common, cystic, and hepatic ducts, were greatly enlarged; liver of a green color; its bile-ducts dilated; some cancerous spots in liver, as also in kidney; gall-bladder distended, containing two gall-stones, supposed, by their passage from the liver, to have occasioned the grinding pain over the organ.
37	Case communicated to me by Dr. Harris.	44; colored woman.	Upwards of thirteen months.	None.	Constant, dull, and extending over abdomen.	Of watery fluid, depositing a blackish sediment; never of food; was not as constant as disease advanced; indeed, at one time ceased for several months.	Regular.	Yellowish conjunctiva, but not early in disease, and never very marked.	Both present and progressive.	None.	Present from the first, increased with the disease; loss of appetite marked; tongue remained clean throughout; some flatulency.	Died of exhaustion.	Pancreas converted into a cancerous mass the size of a fist, and having the general characters of encephaloid. Its right extremity was mainly diseased; the liver was slightly enlarged, had a few small, cancerous tumors on its external surface. The stomach was perfectly healthy, so were also the other abdominal organs; common duct, pervious.