DOI: 10.7860/JCDR/2022/58876.17332

Case Report

Pathology Section

Primary Pancreatic Squamous Cell Carcinoma: An Incidental Diagnosis of a Rare Entity

S SREELAKSHMI[1], RANJANA GIRI[2], GOUTAMI DASNAYAK[3], URMILA SENAPATI[4], VEDAVYAS MOHAPATRA[5]

ABSTRACT

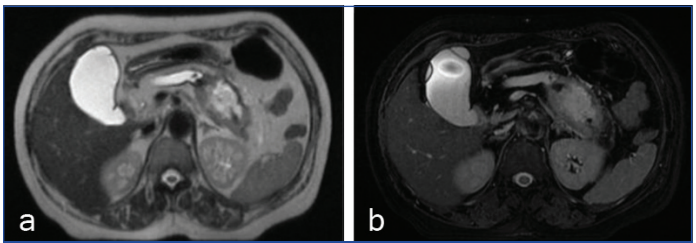
Primary Squamous Cell Carcinoma (SCC) of pancreas is a non endocrine tumour showing ductal origin which accounts for approximately 0.5-2% of all malignant pancreatic tumours. Diagnosis is usually made by tissue sampling followed by comprehensive search for primary SCC elsewhere. Hereby, authors report a rare case of primary pancreatic SCC in a young female. A 46-year-old female with history of type 2 diabetes mellitus presented with abdominal pain radiating to back associated with biliary vomiting since five months. Laboratory investigations revealed mild anaemia, neutrophilic leucocytosis and elevated blood glucose. Carcinoembryonic Antigen (CEA) and Cancer Antigen 19-9 (CA 19-9) were within normal limits. Contrast-Enhanced Computed Tomography (CECT) (abdomen and pelvis) showed pancreatic atrophy, multiple stones in head and body along with a pseudocyst in tail of pancreas. Patient underwent triple phase Magnetic Resonance Imaging (MRI) with Magnetic Resonance Cholangiopancreatography (MRCP) which showed chronic pancreatitis with intraductal calculi in the head and distal body region with pseudocyst at tail region. Frey's procedure was done and tissue sent in multiple pieces. Histopathology revealed features of infiltrating SCC in a background of atrophic pancreas. Immunohistochemistry for CK5/6, P63 and CEA was done for confirmation. It showed strong positivity for CK5/6 and P63, while CEA was negative. Final diagnosis of SCC of pancreas in a background of atrophic pancreas was rendered. Though pancreas is devoid of squamous cells, it is not uncommon to find squamous metaplasia of ductal epithelial cells secondary to chronic inflammation. In the present case, though clinical and radiological features points towards benign lesion, definite diagnosis as SCC is justified by histopathology and immunohistochemistry. Because of the rarity, diagnosis and treatment still remains a challenge.

Keywords: Immunohistochemistry, Malignancy, Pancreas

CASE REPORT

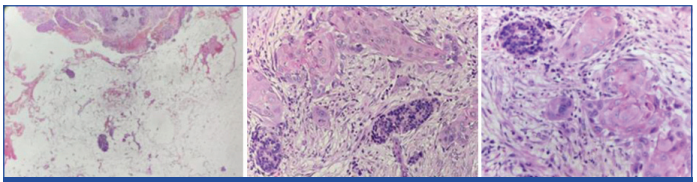
A 46-year-old female patient presented with abdominal pain radiating to the back and associated with on and off biliary vomiting for five months. There was no history of weight loss or loss of appetite. Patient was recently diagnosed to have type 2 diabetes mellitus. Laboratory investigations revealed that haemoglobin was 11.8 g/dL, Total Leucocyte Count (TLC) was 14,578 cells/mm3 with Differential Leucocyte Count (DLC)- neutrophil was 92%, lymphocyte was 05%, zero eosinophil and monocyte aws 3%. High Performance Liquid Chromatography (HPLC) was glycated haemoglobin (HbA1c) was 7.0%. Cancer Antigen 19-9 (CA 19-9) and carcinoembryonic antigen were within normal limits. Liver function tests showed normal values except for serum alkaline phosphatase which was raised (115 U/L).

Contrast Enhanced Computed Tomography (CECT) showed pancreatic atrophy with multiple calculi in head and body of pancreas and a pseudocyst in the tail of pancreas measuring 3.6×2.4 cm. An MRI with Magnetic Resonance Cholangiopancreatography (MRCP) was done subsequently which also showed pancreatic atrophy, main pancreatic duct was 9.2 mm, 3.6×2.4×2.3 cm pseydocyst in tail of pancreas along with intraductal calculi [Table/Fig-1].

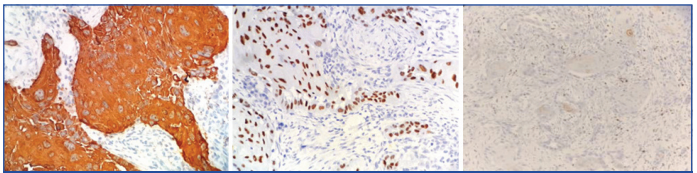


[Table/Fig-1a,b]: Magnetic Resonance Cholangiopancreatography (MRCP) showing atrophic pancreas with dilated main pancreatic duct of 9.2 mm, a 3.6×2.4×2.3 cm pseudocyst in the tail region with an intraductal calculi.

Considering, it as chronic calcific pancreatitis, Frey's procedure was done. Multiple bits of tissue from the head of the pancreas ranging in size from 0.8×0.5×0.3 cm to 2.2×1×0.4 cm were sent for histopathological study. Excisional biopsy was done and tissue was sent for histopathological examination. Microscopically, the tissue showed malignant squamous cells in nests over a background of atrophic pancreas [Table/Fig-2a-c]. The squamous origin of the tumour was confirmed by immunohistochemistry. Tumour cells showed strong diffuse cytoplasmic positivity of CK5/6 in >90% of tumour cells [Table/Fig-3a] and strong nuclear positivity of p63 [Table/Fig-3b]. The ductal origin of tumour cells was confirmed by negativity of Carcinoembryonic Antigen (CEA) in tumour cells [Table/Fig-3c]. In view of the histomorphological and Immunohistochemistry (IHC) finding a diagnosis of primary Squamous Cell Carcinoma (SCC) of pancreas was rendered. Chemotherapy was started on



[Table/Fig-2]: (a) Atrophied pancreatic tissue with a nest of tumour cells (H&E, 40X); b) Malignant squamous cells in nests surrounding pancreatic islets (H&E, 400X); c) Malignant squamous cells in nests over an atrophic pancreas with islets (H&E, 400X). (Images from left to right)



[Table/Fig-3]: (a) CK 5/6 showed cytoplasmic positivity in more than 95% tumour cells (400X); b) p63 showed nuclear positivity in more than 95% tumour cells (400X); c) CEA was negative in tumour cells (100X). (Images from left to right)

Outpatient Department (OPD) basis. However, since the patient moved to another state, she was lost for follow-up.

DISCUSSION

The SCC of pancreas is a rare non endocrine tumour having usually ductal origin. It accounts for approximately 0.5-2% [1] of all malignant pancreatic tumours and has a female predominance. Since, pancreas does not have native squamous tissue, the pathogenesis of SCC is uncertain. The diagnosis of primary SCC is made only after excluding metastatic disease and adenosquamous carcinoma of pancreas which is also another rare primary tumour [2]. The first case of SCC pancreas was described by Lowry CC et al., in 1949 [3]. Mussa AA et al., described the incidence of pure SCCP as 0.5% among all pancreatic carcinomas [4]. Borwin HA et al., reported that three months after en bloc resection with negative margins and lymph nodes, he presented with widely metastatic disease [5]. Squamous metaplasia in the pancreatic ducts is seen in 9-64% of all pancreatic specimen routinely examined at autopsy but transformation to SCC is an extremely rare incidence [6].

Patients with SCC of pancreas present with abdominal pain, back pain, loss of appetite, weight loss, nausea, vomiting and obstructive jaundice. Uncommon presentations with upper gastrointestinal bleeding and sometimes malena have also been reported [7]. SCC has an equal distribution in all parts of the pancreas, with tumours often overlapping multiple regions. A study report showed 73% of SCCs in head of the pancreas followed by 45% in the body [6].

In cases of pancreatic SCC local lymph node metastasis and distant metastases to liver are common. Tumour blush sign in angiography and endoscopic retrograde cholangiopancreatography or tumour enhancement on Contrast-Enhanced Computed Tomography (CECT) can be used to diagnose SCC [4]. Also, endoscopic ultrasound-guided Fine Needle Aspiration Cytology (FNAC) is being accepted recently for the identification of pancreatic malignancies with a high sensitivity and specificity [8,9].

Many hypothesis has been proposed in regard to the origin of pancreatic SCC, some of which are as follows [9]:

1) Malignant change in a primitive cell which is capable of differentiating into either squamous or glandular carcinoma;
2) Squamous change in a pre-existing adenocarcinoma;
3) Malignant transformation in a squamous metaplasia of the ductal epithelium;
4) Malignant change in aberrant squamous cells.

Pure squamous histology has poor prognosis and poor survival rate as compared to adenocarcinoma and adenosquamous carcinoma [3]. Therefore, other rare primary tumours of pancreas and metastasis of other SCC to pancreas should be ruled out. Primary SCC is highly aggressive, most often locally advanced, or metastatic at the time of diagnosis. Treatment options are limited [9]. A surgical resection should be considered in addition to treatment with platinum based chemotherapy [4]. Prognosis is extremely poor and median survival was noted to be seven months, with a range of 6-16 months, in a study of seven patients who underwent curative resection [9].

CONCLUSION(S)

Pure SCC of pancreas is a rare tumour. Though pancreas is devoid of squamous cells, it is not uncommon to find SCC due to metaplasia of ductal epithelial cells secondary to chronic inflammation. Metastasis from other sites should be ruled out before establishing a diagnosis of primary pancreatic SCC. Based on the rare incidence of the histologic subtype of tumour, diagnosis and treatment remains an enormous challenge to clinicians and pathologists.

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PARTICULARS OF CONTRIBUTORS:
1. Postgraduate Resident, Department of Pathology, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, Odisha, India.
2. Professor, Department of Pathology, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, Odisha, India.
3. Assistant Professor, Department of Pathology, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, Odisha, India.
4. Professor and Head, Department of Pathology, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, Odisha, India.
5. Associate Professor, Department of Surgical Gastroenterology, Kalinga Institute Medical Sciences, KIIT University, Bhubaneswar, Odisha, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Goutami Dasnayak,
Assistant Professor, Department of Pathology, Kalinga Institute Medical Sciences,
Kushabhadra Campus 5, Kalinga Institute of Industrial Technology,
Bhubaneswar-751024, Odisha, India.
E-mail: goutamidn@gmail.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Jul 29, 2022
- Manual Googling: Oct 06, 2022
- iThenticate Software: Oct 08, 2022 (6%)

ETYMOLOGY: Author Origin

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. Yes

Date of Submission: **Jul 21, 2022**
Date of Peer Review: **Sep 02, 2022**
Date of Acceptance: **Oct 10, 2022**
Date of Publishing: **Dec 01, 2022**