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**INDO AMERICAN JOURNAL OF  
PHARMACEUTICAL SCIENCES**<https://zenodo.org/records/10049512>Available online at: <http://www.iajps.com>*Review Article***ROLE OF SURGERY IN TREATING ISOLATED PANCREATIC  
METASTASES**<sup>1</sup>Faisal H. Alsarrani, <sup>2</sup>Mohammed S. Almuqbil<sup>1</sup>King Abdullah International Medical Research Center, Riyadh, Saudi Arabia.  
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Department of General Surgery, Ministry of National Guard - Health Affairs, Riyadh,  
Saudi Arabia.**Article Received:** April 2019**Accepted:** May 2019**Published:** June 2019**Abstract:**

*The implementation of metastasectomy with the intention of achieving a cure has now established itself as a widely accepted and customary approach in the field of medical oncology for the treatment and control of certain malignant neoplasms. The surgical procedure known as resection, when applied to cases of isolated metastatic colorectal carcinoma, neuroendocrine cancers, gastrointestinal stromal tumors, sarcoma, and renal-cell cancer has been observed to exhibit a correlation with extended survival rates or, in some instances, even complete eradication of the disease. The present investigation shall revolve around the extraction and subsequent analysis of pertinent data in order to derive conclusive outcomes. Pancreatic metastasectomy has been shown to be effective in a number of case reports and small studies.*

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**INTRODUCTION:**

There aren't very many instances of pancreatic cancer that progress to metastatic illness; in fact, it makes up fewer than 2% of all pancreatic cancers. In the field of oncology, it is generally accepted that the vast majority of patients with metastatic tumors are not good surgical candidates. The widespread nature of the disease which has already spread across the body around the time of diagnosis is largely to blame for this. Though isolated pancreatic metastases are uncommon, hospitals with a large frequency of pancreatic surgeries frequently see patients with metastatic disease amenable to surgical intervention. Due to the favorable biological properties of some malignancies that frequently metastasize to the pancreas, it is also important to stress the necessity of diagnosing surgically resectable illnesses. In this regard, renal cell carcinoma is a useful example.

The precise delineation of the significance of pancreatic metastasectomy remains inadequately characterized in the context of these particular patients. The practice of performing metastasectomy with the intention of curing certain malignancies has now become widely accepted as a standard approach in their management. To date, there is a dearth of case-controlled or prospective trials that have undertaken a comparative analysis of the effectiveness of pancreatic metastasectomy in relation to non-operative management strategies. Given the atypical manifestation of solitary pancreatic metastasis and the prevailing inclination towards surgical excision of these neoplastic formations, the feasibility of conducting a comprehensive investigation on this subject appears improbable. Henceforth, the efficacy of pancreatic metastasectomy shall be evaluated through retrospective analyses, focusing on the long-term survival outcomes.

An investigation encompassed the most extensive examination of pancreatic metastasectomy to date, comprising a modest cohort of merely 49 patients. Additional investigations on this subject matter have been conducted, with sample sizes ranging from 16 to 29 patients. Numerous studies have demonstrated that the surgical procedure known as pancreatic metastasectomy holds promise in facilitating prolonged survival outcomes. The range of interest lies between 4 and 8. Furthermore, a plethora of case reports and findings derived from small-sized cohorts of people who have undergone pancreatic metastasectomy lend credence to the proposition that this particular procedure confers a survival advantage upon individuals afflicted with solitary metastases localized solely within the confines of the pancreas.

The primary objective of this comprehensive review is to critically evaluate the existing body of literature pertaining to pancreatic metastasectomy. The ultimate goal is to derive evidence-based guidelines that can effectively inform and guide the surgical management of metastatic lesions targeting the pancreas. In this comprehensive analysis, we meticulously examine all pertinent studies encompassing a minimum of five patients who have undergone the intricate procedure of pancreatic metastasectomy. The present investigation comprises a series of retrospective studies, specifically focusing on single-institutional analyses. The collective sample size for these studies encompasses a total of 243 patients. An aggregate analysis was conducted on the cohort under study and has been incorporated into certain sections of this review. The outcomes derived from the comprehensive analysis are denoted as a combined or collective outcome within the manuscript to differentiate them from the outcomes presented in individual reports. The examination of survival outcomes was conducted utilizing the widely employed Kaplan-Meier statistical methodology. The Cox proportional hazard analysis method was employed in order to ascertain and quantify the relative disparities that exist between the various groups under investigation.

When the p-value was less than 005, the results were considered to be statistically significant. STATA was used to run the statistical tests and calculations. The study's focus is on answering three important questions about pancreatic metastasectomy. Researchers are curious about the clinical manifestations of isolated pancreatic metastases in patients. It is a point of inquiry how these patients typically manifest themselves. Pancreatic metastasectomy risks are being studied. It is important to study the results of pancreatic metastasectomy. We conclude with our suggestions for finding and choosing pancreatic metastasectomy patients who will benefit most from this treatment.

**Clinical Presentation of Patients with Isolated Pancreatic Metastases**

Similar to primary pancreatic carcinoma, the initial indications and manifestations of isolated pancreatic metastatic tumors frequently exhibit a lack of specificity and subtlety. It is not uncommon for isolated pancreatic metastases to be discovered during routine imaging follow-up for primary lesions or by chance during imaging for another reason. Pancreatic metastases have been widely studied for their unique morphological characteristics on cross-

sectional imaging. In contrast to the typical behavior observed in pancreatic adenocarcinoma, secondary pancreatic cancers exhibit a more frequent tendency to exhibit enhancement during the arterial component of a contrast-enhanced computed tomography (CT) scan. Moreover, in stark contrast to elementary pancreatic adenocarcinoma, colorectal-cancer metastases, renal-cell cancer, and breast-cancer metastatic tumors to that of the pancreas exhibit a notable propensity for rim enhancement, with a prevalence of 88%. Out of the total 17 studies, a noteworthy 11 studies were found to provide adequate patient presentation details, thereby enabling comprehensive aggregate analysis. There were a total of 176 patients included in this research. 43% of the population is made up of those who are diagnosed while showing no outward signs of illness. Pancreatic metastases were discovered in these patients mostly through the use of routine surveillance imaging or as a coincidental finding during imaging studies performed for other reasons. The most common symptom reported by patients in the symptomatic group was stomach discomfort, with around 24% of people experiencing it. Jaundice was the next most common symptom, with about 22% of patients experiencing it. Another prominent symptom found was gastrointestinal bleeding, which affected about 10% of the symptomatic patients.

#### **Pancreatic Metastasectomy: Is it Safe?**

Concerns have been raised even about the resection of localized primary pancreatic cancer due to the high mortality and morbidity rates associated with pancreatic resection. A large body of recent research, however, supports the claim that pancreatic resection-related mortality has been declining over the past three decades. Patients undergoing pancreaticoduodenectomy for benign pancreatic disorders were studied before, and we reported on their perioperative death and morbidity rates. As a percentage of patients who did not survive the perioperative period, the mortality rate was calculated to be 2%. In addition, 38 percent of patients experienced morbidity, or non-fatal problems during the perioperative period. Similar rates of problems have been documented in a cohort of patients who underwent pancreatic resection to treat metastatic illness, suggesting that the aforementioned data is accurate. Here, we see a spectrum of difficulties, from 5% to 48%.

In the cohort of 243 individuals who underwent pancreatic metastasectomy, the aggregate mortality rate was observed to be 1.2%, while the morbidity rate was recorded at 38.3%. The present discovery exhibits a striking resemblance to our investigation

pertaining to pancreatic metastasectomy, wherein a morbidity rate of 48% was documented alongside an absence of perioperative fatalities. In this comprehensive review, the intricacies surrounding complications were meticulously examined through a meticulous process of stratification, employing the esteemed classification system put forth by Dindo and his esteemed colleagues. Based on the present analysis, a majority of complications (62%) were classified as grade I, thereby necessitating solely pharmacological intervention. Grade IV complications were observed in a mere 6% of the patient cohort, manifesting primarily as sepsis that was directly associated with postoperative pancreatic fistulae. The distribution of complications observed in this study closely aligns with previous reports on the surgical removal of primary pancreatic lesions. The complications observed in this study include postoperative pancreatic fistula (4%), delayed gastric emptying (12%), wound infections (20%), and respiratory complications (12%). Collectively, the findings presented herein substantiate the favorable safety profile associated with pancreatic metastasectomy.

#### **Efficacy of Pancreatic Metastasectomy**

The efficacy of pancreatic metastasectomy seems contingent upon the neoplastic characteristics of the originating malignancy. In the majority of extensive investigations, the paramount prognostic factor for extended-term survival is the specific classification of cancer. Renal-cell carcinoma has been found to exhibit a favorable prognosis, while lung cancer has been consistently associated with a significantly poorer prognosis. Pancreatic metastasectomies, a surgical procedure aimed at removing metastatic lesions in the pancreas, are predominantly observed in 80% of cases associated with four distinct cancer types, namely renal-cell cancer, sarcoma, colorectal carcinoma, and melanoma.

#### **Renal cell carcinoma**

Resection, a surgical treatment in which kidney-confined primary renal-cell carcinoma is removed, has an impressive 5-year survival rate of around 95%. The current research is focused on a single individual, aged 27 at the time of writing. However, the presence of metastases reduces the median survival to only about 10 months. About 20% of patients with primary renal-cell carcinoma are found to have metastatic lesions at the time of diagnosis. It has been discovered that an extra 40% of patients in the cohort who have resection of localized primary disease will subsequently develop disseminated disease. Metastasis from renal-cell carcinoma typically occurs in the lungs, liver, and bone.

Metastasectomy, a surgical procedure aimed at removing metastases in the liver and lungs, has been extensively documented in medical literature. This intervention has shown promising outcomes, particularly in terms of enhancing long-term survival rates for patients. Whilst the pancreas is not a frequently observed location for metastasis originating from renal-cell cancer, it is noteworthy that patients typically manifest with localized disease, often several years subsequent to the removal of the primary metastatic lesion.

Fifteen studies pertaining to the surgical removal of pancreatic metastases in patients with renal-cell cancer, encompassing cohorts of five or more individuals, were identified in our investigation. Among the 11 studies encompassing long-term survival data, a notable proportion of seven studies (64%) documented a 5-year survival rate surpassing 80% subsequent to the performance of pancreatic metastasectomy. A comprehensive Kaplan-Meier analysis was conducted utilizing the data obtained from a subset of 112 patients out of the total 150 individuals enrolled across the 15 studies. The analysis revealed a noteworthy median survival duration of 8.75 years, with a wide range spanning from 0.6 months to 18.5 years. Furthermore, the investigation demonstrated a 5-year survival rate of 66%, indicating a considerable proportion of patients who successfully surpassed this critical milestone.

Within this specific cohort, the concurrent performance of pancreatic metastasectomy alongside primary renal-cell cancer resection was found to be infrequent, with a mere six occurrences observed out of a total of 112 patients. In the cohort of patients who underwent resection of metachronous lesions, there was a notable inclination towards enhanced survival when compared to those who underwent synchronous resection. The median survival for patients in the metachronous resection group was 105 months, whereas it was 31.5 months for patients in the synchronous resection group ( $p=0.05$ ). Nevertheless, in the context of univariate analysis, the temporal interval between the resection of the primary lesion and the subsequent pancreatic metastasectomy procedure did not exhibit any discernible impact on overall survival outcomes.

For patients with renal-cell malignancies undergoing pancreatic metastasectomy, solid prognostic indications have yet to be established. Ghavamian et al. found that a tumor's grade of pancreatic metastasis is correlated with the grade of the underlying renal-cell cancer. Tumor grade was also found to be a survival predictor; grade 2 malignancies had an

average survival time of 41 months, while grade 3 tumors had a much poorer median survival of 10 months, according to the study. It will be up to future studies to definitively prove that there is a correlation between tumor grade and prognosis. This discussion will make an effort to reword the user's input so that it conforms to the writing style of a study looking into the prognostic indicators of primary renal-cell carcinoma and finding conflicting results. Dimensions of the tumor, lymph node involvement, perineural invasion, and vascular invasion are all factors that are taken into account during the evaluation process.

The in-depth assessment of the mentioned traits in relation to prognostic outcomes in the realm of pancreatic metastasectomy, primarily from renal-cell carcinoma, is hampered by the not enough granularity of details within the gathered information derived from the collaborative analysis of 15 studies. In this study, we analyzed data from 21 patients who underwent pancreatic metastasectomy at our prestigious institution for renal-cell carcinomas. There were no significant differences in prognosis when a tumor was larger than 4 cm in diameter ( $p=0.13$ ) or when perineural invasion occurred ( $p=0.26$ ). Overall survival was lower in cases where lymph nodes were involved (hazard ratio 24:1,  $p=0.01$ ) or when vascular invasion was present. According to the statistical evaluation of the collected data, only 5% of the 106 patients had lymph node involvement.

The inquiry into the potential impact of pancreatic metastasectomy on the development of renal-cell malignancies was undertaken by Zerbi et al. A non-matched group of controls comprising individuals with pancreatic renal-cell tumor metastases who were managed non-operatively was evaluated. Within the confines of this particular investigation, it was observed that a total of 36 individuals afflicted with pancreatic renal-cell carcinoma were subjected to scrutiny. It was determined that 13 out of these 36 patients were not presented with the option of undergoing surgical intervention due to considerations pertaining to their functional capacity or the magnitude of their ailment. The present study involved a cohort of 13 individuals who were designated as the control group. The objective of this investigation was to assess and juxtapose the outcomes observed in this group with those observed in patients who underwent pancreatic metastasectomy. In the entirety of the cohort under study, the median survival duration was observed to be 27 months, with a range spanning from 0.6 months to 222 months. Furthermore, the 5-year survival rate

was determined to be 47%. The cohort of individuals who underwent surgical resection of tumors exhibited a noteworthy 5-year survival rate of 88%, in stark contrast to the non-operative group, which demonstrated a considerably lower survival rate of 47% ( $p=0.026$ ). In this study, we propose to explore the potential advantages associated with pancreatic metastasectomy. Nevertheless, drawing a definitive conclusion regarding the actual advantages of resection in this context proves to be challenging due to the presence of a significant selection bias. This bias has led to a higher prevalence of comorbidities within the cohort of patients who did not undergo pancreatic metastasectomy.

The purpose of this study was to evaluate the outcomes of patients who had undergone resection for metastatic renal-cell carcinoma in the lung and those who had undergone resection for pancreatic metastasectomy. The use of pulmonary resections for the treatment of renal cell carcinoma is now a standard medical practice. It has been shown that the 5-year survival rate after such resections ranges from 31% to 44%. It was determined if pulmonary resection or pancreatic resection was more effective in the management of metastatic renal-cell carcinoma. The results show that the two methods are equivalent. Patients who received pancreatic resection had a median survival of 58 months, while those who got pulmonary resection had a median survival of 45.6 months ( $p=0.78$ ). The results of the current study suggest that pancreatic metastasectomy is preferable to the more common pulmonary metastasectomy.

### Colorectal Carcinoma

The documented advantages of performing resection on solitary metastases of colorectal cancer in the lung and hepatobiliary system have been extensively studied, revealing a reported 5-year survival rate ranging from 27% to 58%. The efficacy of pulmonary as well as hepatic metastasectomy in the treatment of colorectal cancer can be attributed to meticulous patient selection and the implementation of efficacious systemic therapy. In the cohort of individuals diagnosed with colorectal cancer, the occurrence of solitary metastases specifically localized to the pancreas is significantly less prevalent when compared to solitary metastases observed in the liver or lung. To date, there is a paucity of research investigating the specific impact and efficacy of pancreatic metastasectomy in the context of colorectal cancer. The present study conducted an aggregate analysis for the purpose of this Review, revealing that a total of 8% of pancreatic metastasectomies were conducted specifically on

patients diagnosed with colorectal cancer. The sample size for this assessment consisted of 19 patients. Within this cohort, a total of nine individuals were identified, all of whom were sourced from a singular institution. Notably, these patients exhibited direct involvement of the pancreatic region. The present study aimed to investigate the survival outcomes of patients diagnosed with colorectal cancers, which were categorized alongside gastric cancers for the purpose of conducting a comprehensive analysis. The median survival duration for this cohort of malignancies was duly documented as 8 months.

In contrast, the aggregated survival data pertaining to the cohort of 10 patients who exhibited genuine metastatic disease revealed a median survival period of 54 months, with a range spanning from 12 to 105 months. Furthermore, the 5-year survival rate for this group was determined to be 27%. These findings closely align with the survival outcomes observed in cases involving hepatic metastasectomy.

### Sarcoma

Stage IV sarcoma, also known as metastatic sarcoma, is associated with an unfavorable prognosis, as the available systemic therapeutic interventions have demonstrated limited efficacy in terms of extending overall survival. Nevertheless, it is worth noting that there is a notable deviation from the aforementioned pattern in the case of gastrointestinal stromal tumors (GIST). In this particular context, the administration of the tyrosine kinase inhibitor known as imatinib mesylate has demonstrated a remarkable ability to induce a prolonged and favorable reaction in individuals afflicted with unresectable GIST. The present study aims to investigate the subject matter at hand, specifically focusing on the numerical value of 50. In the context of non-gastrointestinal stromal tumors (GIST), the conventional therapeutic approach involving the administration of doxorubicin in conjunction with dicarbazine demonstrates limited efficacy. The sole opportunity for achieving a cure in patients afflicted with limited sarcoma metastases lies in the pursuit of complete surgical resection. Regrettably, this phenomenon is only observed in a limited subset of patients.

There is a lack of studies that have fully assessed the prognostic consequences of doing or not performing pancreatic metastasectomy for people with metastatic sarcoma that is localized to the pancreas. In the present pooled analysis performed for this extensive Review, only 10 patients were included. The analysis showed that the median survival time was 40 months and that only 14% of patients made it to the fifth



year. When compared to the previously documented survival rates for both the lungs and the liver, the current survival rates show a significant drop.

While the benefits of pancreatic metastasectomy have been documented, it is important to note that the small patient population included in this analysis could potentially undermine their validity and dependability. The results of sarcoma resections in other organs should be factored into the decision to provide the aforementioned treatment. Removing sarcoma metastases from the lungs has been the subject of much research, which has shown that it can improve survival rates over the long term. The results of 250 patients who underwent isolated excision of advanced sarcoma to the lung after effective therapy of their primary tumor location were analyzed retrospectively by a multicentre team in Europe. The medical literature reports that patients who underwent a metastasectomy with negative margins had a remarkable disease-free survival of more than 2 years. Patients sharing similar characteristics had a 41% 5-year disease-free survival rate in a separate research. Resection techniques for the treatment of liver metastases from solitary sarcoma have been studied, with encouraging results. Rehders et al. found a median survival time of 44 months in a group of 45 patients who had undergone hepatic metastasectomy, with an impressive 49% 5-year survival rate.

### Melanoma

Metastatic melanoma is characterized by an unfavorable prognosis, as evidenced by a 5-year survival rate of approximately 5%. The efficacy of systemic therapies in enhancing overall survival is observed to be of a modest nature. Henceforth, the surgical excision of solitary metastatic ailment presents itself as a viable course of action for certain individuals. The evaluation of the efficacy of metastasectomy in individuals diagnosed with melanoma with metastatic spread has been conducted through retrospective analyses and thoroughly examined by Ollila. In a concise manner, the efficacy of metastasectomy is contingent upon the specific anatomical location of metastasis.

Based on the aforementioned discovery, the American Joint Committee on Cancer (AJCC) has undertaken the task of categorizing stage IV melanoma into distinct subcategories based on the specific sites of metastasis. Each anatomical location is intricately linked with distinct prognostic outcomes. In the cohort of individuals diagnosed with stage IV disease, it has been observed that the presence of metastases specifically confined to the

skin soft tissue and lymph nodes (classified as M1a) is correlated with the most favorable prognostic outcomes. The prognosis for metastases to the lung (M1b) is considered to be of intermediate nature, while the prognosis for metastases to other visceral organs (M1c), including the gastrointestinal tract, is regarded as the most unfavorable. The study findings revealed that patients who went through surgical removal of gastrointestinal metastases exhibited median survival rates ranging from 15 to 49 months. The occurrence of metastatic melanoma confined solely to the pancreas is an infrequent phenomenon, and there is a dearth of studies that have specifically investigated the prognosis and results associated with this condition. Nevertheless, it is worth noting that individuals diagnosed with metastatic melanoma may experience comparable outcomes to those diagnosed with gastrointestinal metastases originating from other sites.

### Patient Selection for Pancreatic Metastasectomies

Given the potential for significant morbidity following pancreatic resection as well as the uncertain efficacy of metastasectomy in certain patient populations, it is prudent to consider pancreatic metastasectomy only following a thorough and methodical selection process. Ideally, the implementation of this procedure would necessitate the collaboration of a diverse group of experts encompassing a medical oncologist and a proficient pancreatic surgeon. Upon reaching the conclusion to continue with resection, existing evidence strongly indicates that the execution of said procedure should be conducted at a medical facility that demonstrates a high volume of cases.

The present study proposes the subsequent criteria for the identification and inclusion of patients suitable for pancreatic metastasectomy: The primary neoplasm, a specific type of malignancy, is linked to favorable prognoses, as it allows for effective management of the primary tumor location, isolated metastatic lesions, and the feasibility of surgically removing the metastasis. Additionally, the patient's overall health and ability to withstand pancreatectomy, a surgical procedure, are important factors to consider.

While it is not imperative to obtain a tissue diagnosis prior to the removal of a presumptive pancreatic metastasis, it is common practice to have a suspicion regarding the origin of the tissue. The optimal result is correlated with the surgical removal of metastatic renal-cell carcinoma, leading to consistent attainment of prolonged survival. Conversely, patients diagnosed as having metastatic melanoma and lung carcinoma

frequently do not experience comparable outcomes. Notwithstanding these observed variations, it is noteworthy that there is no definitive evidence to suggest that any specific type of cancer should be considered an absolute contraindication for pancreatic metastasectomy in patients who have been carefully selected based on appropriate criteria. The presence of tumor-related characteristics may potentially influence clinical judgment regarding the appropriateness of surgical intervention for individuals diagnosed with highly aggressive malignancies. Potential characteristics encompass metachronous disease exhibiting a substantial duration of freedom from disease, unifocal metastasis, and favorable response to systemic therapy.

Pancreatic metastasectomy will only be beneficial to a patient if the primary tumor site is under control. Cryoablation or surgical resection may be necessary for renal-cell carcinoma. Patients with gastrointestinal or mammary adenocarcinomas ought to undergo a suitable lymphadenectomy in conjunction with a margin-negative resection. It is unknown if the excision of the original malignancy and pancreatic metastasectomy should occur at the same time. When there is a possibility of broad diffusion of pancreatic metastases, for example, simultaneous surgeries may be suitable. It is necessary to take into account the combined morbidity of pancreatic resection, particularly pancreaticoduodenectomy, along with the risk of primary cancer resection. A different strategy is to remove the main tumor and pancreatic metastases in stages, with systemic medication administered in between. In cases of estrogen- and progesterone-positive breast cancer that respond well to systemic therapy, this method manages micrometastases prior to pancreatic metastasectomy. Foregut adenocarcinomas, melanoma, and renal-cell cancer are among the conditions where systemic treatment is less successful. Staged resections can be used to determine patients who are unlikely to benefit after pancreatic metastasectomy while others will instead develop more widespread illness.

It may be challenging to diagnose extra-pancreatic metastatic disease in a patient whose pancreatic metastasis appears to be localized. While guided biopsies, PET scans, and cross-sectional imaging are useful, they may not be definitive. Similar to primary pancreatic cancer, an individual should be offered the sole potentially curative therapy—surgical resection—and ought to receive the benefit of the doubt if there isn't evidence of definitive systemic metastasis. Pancreatic metastasectomy is unlikely to

be beneficial in cases of broad metastatic illness; instead, the patient should be evaluated for systemic therapy. Rarely, a patient may have a second, isolated, synchronous, or metachronous illness that can be surgically removed. As long as all locations are amenable to resection, pancreatic metastasectomy ought to be a possibility. For colorectal cancer, staged liver and pulmonary metastasectomies have been reported to have comparatively positive results. Most pancreatic metastasectomies in large studies are performed by formal pancreatic resection, which may involve a distal pancreatectomy, pancreaticoduodenectomy, or total pancreatectomy. Fewer studies have been done on the function of more restricted pancreatic resections like enucleation or central pancreatectomy. Reductions in short- and long-term morbidity, such as the onset of pancreatic metastases of type III diabetes mellitus, may be possible with these restricted resections. Patients following minimal resection experienced a 50% regional recurrence incidence, according to research by Bassi and colleagues.

Furthermore, the peri-operative morbidity rate was higher in patients receiving enucleation or centralized pancreatectomy (83% vs. 27%,  $p=0.0498$ ). The majority of other studies on restricted pancreatic resections lack long-term follow-up data. Therefore, we support formal pancreatic excision for the surgical elimination of pancreatic metastases in the absence of data demonstrating an obvious advantage for these treatments. The objective of a pancreatic metastasectomy ought to be a local regional lymphadenectomy with a margin-negative resection. There is currently a dearth of scientific literature elucidating the specific criteria for determining the resectability of metastatic cancer that has spread to the pancreas. However, it is plausible to posit that the identical criteria are applicable in the context of local resectability for both primary pancreatic carcinoma and cancers with metastatic spread. The criteria for selection are expected to encompass the absence of tumor infiltration (encasement) in relation to the superior mesenteric, proper hepatic arteries, or common hepatic artery. Furthermore, it is worth noting that the resection of tumors that encompass or infiltrate the portal vein, particularly in the vicinity of the superior mesenteric vein confluence, may be considered a viable option provided that vascular reconstruction is deemed feasible. The most optimal approach for evaluation entails the utilization of a superior-grade computed tomography (CT) scan specifically designed for the examination of the pancreas. Based on our empirical observations, it has been noted that metastatic disease exhibits a comparatively lower degree of infiltrative

characteristics when compared to ductal adenocarcinoma. Renal-cell cancer, a malignancy primarily affecting the kidneys, exhibits a noteworthy resemblance to primary pancreatic neuroendocrine tumors in terms of its behavior concerning the displacement rather than invasion of the adjacent vascular structures.

### CONCLUSION:

While the occurrence of localized spread to the pancreas is infrequent, it is not uncommon for pancreatic surgery referrals centers to come across such cases. Numerous instances of case reports and limited-scale investigations have delineated the presence of favorable outcomes pertaining to pancreatic metastasectomy. Renal-cell carcinoma, colorectal carcinoma, melanoma, and sarcoma have been identified as the prevailing neoplastic lesions that are frequently subjected to surgical resection due to their metastatic spread to the pancreas. The optimal prognosis for pancreatic metastasectomy, when considering various cancer types, is observed in cases of renal-cell carcinoma. Nevertheless, it is plausible that patients across all four cohorts could potentially derive advantageous outcomes from the aforementioned medical intervention. The selection of patients for pancreatic metastasectomy necessitates the consideration of several crucial criteria. These criteria encompass the type of primary cancer that exhibits a favorable prognosis, effective management of the primary cancer site, confirmation of isolated metastases, feasibility of resecting the metastasis, and the patient's overall physical condition to withstand pancreatectomy.

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