The prognosis of pancreas cancer is dismal. Unfortunately only less than 20% of the patients are diagnosed at resectable stage. The resection rate is only about 30% even in high volume center.

In contrast, 25-30% of patients are diagnosed as have locally advanced tumors in the absence of distant metastases at initial presentation. Generally, the tumors up to T3 (AJCC 7th ed.) are considered as resectable, whereas T4 tumors invading celiac axis, hepatic artery, and SMA are considered as unresectable. Strict and universally accepted criteria to define resectability are still lacking. However, several groups have performed aggressive surgeries such as portal vein, arterial resection, and multivisceral resections in an attempt to increase the curability for the advanced pancreas cancer with favorable results in selected patients. NCCN guideline and consensus statement recently published regarding borderline resectability and unresectability imply that limited involvement of vascular structure by tumor once regarded as a barrier to resection is no longer contraindication for resection with curative intent. In this article, recent consensus statement of resectability and the reports of surgical resection for highly selected locally advanced pancreas cancer are reviewed. We also present our survival data according to the curability of resection and two cases invading celiac axis which were resected by modified Appleby procedure.

Staging of the locally advanced pancreas cancer

Seventh edition of AJCC-UICC TNM staging of pancreas cancer has not changed from that of 6th edition. Tumors involving the celiac axis and superior mesenteric artery are locally advanced tumor and defined as T4. These T4 tumors are generally regarded as unresectable when it is evident in preoperative CT scan. However, preoperative identification of major arterial invasion is not always accurate as reported by several radiologic studies. Thus, the risk of inadvertent exclusion from potentially curative resection should be considered in the management of patients with locally advanced pancreas cancer. With the advances in high quality CT imaging, new concepts to define the extent of venous and arterial invasion has been developed and a subset of tumors called BRPC that blur distinction between resectable and locally advanced pancreas cancer is categorized. BRPC once considered as unresectable has now accepted consensus as a resectable tumor though it has high risk of disseminated disease and incomplete resection. With neoadjuvant chemoradiation therapy for the BRPC patient, considerable amounts of patients are being reported to undergo complete resection.

NCCN criteria to define BRPC

According to NCCN guideline (BRPC), tumors considered borderline resectable include the followings: No distant metastases, Venous involvement of the SMV/portal vein showing tumor abutment with or without impingement and narrowing of
the lumen, encasement of the SMV/portal vein but without encasement of the nearby arteries, or short segment venous occlusion resulting from either tumor thrombus or encasement but with suitable vessel proximal and distal to the area of vessel involvement, allowing for safe resection and reconstruction. Gastroduodenal artery encasement up to the hepatic artery with either short segment encasement or direct abutment of the hepatic artery, without extension to the celiac axis. Tumor abutment of the SMA not to exceed 180° of the circumference of the vessel wall. Neoadjuvant chemotherapy may increase the resectability.

**NCCN criteria to define the unresectable tumor**

According to NCCN guideline for pancreas cancer recently published, presence of distant metastasis, unreconstructible SMV/Portal invasion, SMA or Celiac axis encasement more than 180° are criteria for unresectable pancreas head, body, and tail cancer. Especially any celiac abutment is a criterion for unresectability for pancreas head cancer.

**CT findings suggesting a tumor is amenable to vascular reconstruction**

A tumor in the head of the pancreas with noncircumferential apposition to the portal vein is usually resectable and noncircumferential invasion of the SMV, proximal to jejunal branches usually indicates resectability. Follow-up CT may be used to assess response to neoadjuvant chemoradiotherapy when baseline CT shows the tumor abutting (<180° of circumferential contact) a short segment, typically less than 2 cm, of the superior mesenteric or hepatic artery. CT scans are usually obtained at 4 to 6-week intervals. The principal evidence of potential resectability is the disappearance of soft tissue abutting the arteries. Persistent periartrial stranding does not preclude surgery because this finding may be the result of radiation therapy.

**CT findings suggesting a tumor is not amenable to vascular reconstruction**

Circumferential involvement of a superior mesenteric vein-portal vein segment more than 2 cm long, thrombus in the vein, or invasion of the transverse mesocolon indicate unresectability, and vein reconstruction is not usually attempted in such cases. Circumferential involvement of a short segment, typically less than 2 cm, of the superior mesenteric vein close to the portal confluence is considered borderline resectable. The main concern for operating on these patients is that the tumor will be closely applied to the retroperitoneal margin. Invasion of the transverse mesocolon precludes curative surgery because adequate control of the venous tributaries making up the superior mesenteric vein is virtually impossible. Invasion of the gastroduodenal artery per se is not a contraindication to surgery because this vessel is resected during pancreaticoduodenectomy.

Celiac, hepatic, or superior mesenteric arterial occlusion and circumferential invasion remain contraindications to curative surgery.

**Expert panel consensus statement regarding the margin status after PD and role of palliative pancreatico-duodenectomy**

Evans DB et al. expert panel consensus statement regarding important issues that may influence on the survival of the