

**Table 1: Study Characteristics**

References	Country	Designs	No. of patients		Sex, male/female, no.		Bilateral stent techniques	Mean Age (in years)		Follow-up	End point of the study	Study Quality
			Bilateral stent	Unilateral stent	Bilateral stent	Unilateral Stent		Male	Female			
Lee 2017 (10)	Korea	Prospective RCT	67	66	36/31	33/33	SIS or SBS	73.5	74.1	All patients were followed for at least 8 months.	primary Outcome <ul style="list-style-type: none"> <li>• Reintervention rates for stent malfunction</li> </ul> Secondary outcomes <ul style="list-style-type: none"> <li>• Technical success rate</li> <li>• Clinical Success rates</li> <li>• Early and late adverse event rates</li> </ul>	

											<ul style="list-style-type: none"> <li>• Stent patency duration</li> <li>• Patient survival duration.</li> </ul>	
Teng 2018 (20)	China	Retrospective	52	54	25/22	32/21	SBS	66.2	63.7	Follow-up ended at the time of terminating this study (February 2018) or the patient's death.	Primary endpoint <ul style="list-style-type: none"> <li>• Stent patency.</li> </ul> Secondary endpoints <ul style="list-style-type: none"> <li>• Complications rates</li> <li>• survival.</li> </ul>	7
Mukai 2013 (14)	Japan	Prospective RCT	16	14	NA	NA	NA	NA	NA	All patients were followed up from stent insertion until death. Median follow up	Primary endpoints <ul style="list-style-type: none"> <li>• 6-month patency rates</li> <li>• 50% patency period after intervention.</li> </ul> Secondary endpoints <ul style="list-style-type: none"> <li>• Frequency of reintervention for stent failures</li> </ul>	8

										was 220 days.	<ul style="list-style-type: none"> <li>Total treatment cost.</li> </ul>	
Naitoh 2009(18),	Japan	Retrospective	29	17	12/17	9/8	SBS	70	69	All patients were followed up from stent insertion until death. Median survival was 258 days for unilateral, and 411 days for bilateral metal stenting.	<p>No primary endpoints were defined. The study was designed to</p> <ul style="list-style-type: none"> <li>Compare success of stent insertion</li> <li>Success of drainage</li> <li>Early and late complications rates.</li> <li>stent patency</li> <li>Survival post stenting</li> </ul>	6
Iwano 2009 (7)	Japan	Retrospective	17	65	11/6	35/30	SIS	66.6	71.6	NA	<p>No endpoints were defined. The study looked</p> <ul style="list-style-type: none"> <li>Survival time</li> <li>Stent patency</li> </ul>	5

											<ul style="list-style-type: none"> <li>• Cause of stent obstruction</li> <li>• Stent-associated complications</li> </ul>	
Chang 2017 (15)	China	Retrospective	30	33	17/10	21/10	SBS	71.3	62.7	Patient death, or the time of paper submission. The median survival time was 200 in unilateral group and 198 days in the bilateral stent group.	Primary endpoint <ul style="list-style-type: none"> <li>• Stent dysfunction.</li> </ul> Secondary endpoints <ul style="list-style-type: none"> <li>• Stent-related complication and death.</li> </ul>	6
Liberto 2012 (17)	Portugal	Retrospective	45	35	NA	NA	SIS	NA	NA	All patients were followed up from stent insertion until	Not well defined. The study compared <ul style="list-style-type: none"> <li>• Technical success</li> <li>• Functional success</li> <li>• Early and late complications</li> </ul>	6

										death. Median survival was 45 weeks.	<ul style="list-style-type: none"> <li>• stent patency</li> <li>• survival for patients</li> </ul>	
Hatamaru 2017 (16)	Japan	Abstract	27	52	NA	NA	NA	72.5	74	1-month follow-up	NA	Not applicable
Cheng 2017 (19)	China	Abstract	83	80	NA	NA	NA	NA	NA	NA	NA	Not applicable

NA: not available in manuscript. SIS: Stent-in-Stent, SBS: Side-by-Side technique

Table 2: Reasons for late stent malfunction

Stent Malfunction	Teng 2018 (20)		Naitoh 2009(18)		Iwano 2011(7)		Chang 2017(15)	
	Bilateral	Unilateral	Bilateral	Unilateral	Bilateral	Unilateral	Bilateral	Unilateral
Overall	4	9			8	27		
Sludge	0	1	6	10	5	7	3	5
Necrotic Tissue	0	0	0	0	0	1	0	2
Tumor ingrowth	4	6	6	8	2	15	3	3
Tumor Outgrowth	0	2	0	2	1	4	0	0