

Table 1. Characteristics, results and levels of evidence of included studies

First Author, Year	Type of Study	Number of Patients	Patient Characteristics	Intervention	Comparison	Follow up	Outcomes	Results	Comments	Level of Evidence (SIGN)*
Aravantinos, 2007 [5]	case series	270	ureteric obstruction due to malignancy, 54 PCAs (20%), 243 with bilateral obstruction; retrograde stenting impossible, mean age 63 years	PCN	no comparison intervention	n.s.	overall survival	OS in PCA patients 22–723 days (no mean given) significant difference in OS between M0 patients (longer survival) and M1 patients (p = 0.0365) 6-months-OS of all 270 patients 33%	imprecise outcome, retrospective analysis, no comparison intervention	3
Bordinazzo, 1994 [11]	case series	28	ureteric obstruction due to PCA, mean age 72 years, 18 with bilateral obstruction, 13 AD naive	PCN	no comparison intervention	n.s.	complication rate, overall survival	median OS all patients: 22 months 1-year-OS: 60%; 2-year-OS: 32%; 3-year-OS: 15% median OS unilateral obstruction: 20 months 1-year-OS: 54%; 2-year-OS: 35%; 3-year-OS: 26% median OS bilateral obstruction: 20 months 1-year-OS: 57%; 2-year-OS: 26%; 3-year-OS: 8% (p = 0.24) median OS AD naive: 24 months 1-year-OS: 70%; 2-year-OS: 45%; 3-year-OS: 19% median OS AD pre-treated: 11 months 1-year-OS: 46%; 2-year-OS: 17%; 3-year-OS: 7% (p = 0.14) complication rate 0/28 = 0%	comparison between subgroups underpowered, decompression technique (unilateral vs bilateral) not described, retrospective analysis, no comparison intervention	3
Chiou, 1990 [3]	case series	37	ureteric obstruction due to PCA, mean age 73 years, 12 with renal failure, 15 AD naive	PCN, i.v. DES in 2 patients, radiation in 4 patients	no comparison intervention	n.s.	overall survival	median OS all patients: 21 months 1-year-OS: 57%; 2-year-OS: 29%; 3-year-OS: 14% median OS unilateral obstruction: 21 months 1-year-OS: 55%; 2-year-OS: 36%; 3-year-OS: 27% median OS bilateral obstruction: 20 months 1-year-OS: 58%; 2-year-OS: 27%; 3-year-OS: 8% (p = 0.24) median OS AD naive: 24 months 1-year-OS: 73%; 2-year-OS: 47%; 3-year-OS: 20% median OS AD pre-treated: 12 months 1-year-OS: 48%; 2-year-OS: 19%; 3-year-OS: 8% (p = 0.15) radiation or DES without effect on obstruction	comparison between subgroups underpowered, not stated, whether uni or bilateral decompression, retrospective analysis, no comparison intervention	3
Chitale, 2002 [8]	cohort study	65	ureteric obstruction due to malignant disease, 28 PCAs (43%), age range of 53–84 years, majority between 71 and 80 years	retrograde ureteric stenting (n = 24)	PCN with antegrade ureteric stenting (n = 41)	10–36 months	rates of successful intervention completion	successful completion retrograde stenting: 5/24 = 21% PCN + antegrade stenting: 41/41 = 100% 19 retrograde stenting failures received PCN + antegrade stenting with successful completion in 19/19 = 100% failure of antegrade stenting in 1/60 = 2%	allocation criteria for initial treatment not described, retrospective analysis, high risk of bias	2-

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Dowling, 1991 [12]	case series	22	ureteric obstruction due to PCA, AD resistant, 17 with bilateral obstruction (77%), mean age 67 years	PCN, bilaterally (n = 6 = 27%) or unilaterally (n = 16 = 73%) additional chemo (n = 8) or radiation (n = 2) or AD (n = 4) or combination (n = 3)	n.s.	n.s.	discharge rate, complication rate, overall survival	discharge rate 16/22 = 72% complication rate 1/22 = 5% 4-months-OS 82%	imprecise outcome measures, inhomogenous treatment, no comparison intervention, retrospective analysis	3
Fallon, 1980 [9]	case series	100	ureteric obstruction due to malignant disease, 37 PCAs (37%), 71 with renal failure, 76 with bilateral obstruction, age range from 15 to 84 years	PCN; unilateral (n = 60) or bilateral (n = 40) no comparison intervention	n.s.	n.s.	overall survival	for PCA patients only: mean survival: 12.2 months median survival: 7 months	retrospective analysis, no comparison between interventions or patient groups	3
Harris, 2006 [6]	case series	26	ureteric obstruction due to PCA, either hormone naive (group 1, n = 2 = 8%) or hormone-responsive (group 2, n = 3 = 12%) or hormone resistant (group 3, n = 21 = 80%), mean age group 1 80 years, group 2 76 years, group 3 75.5 years	PCN, partly with stent (n = 20) partly bilaterally (n = 14) partly unilaterally (n = 12) no comparison intervention	n.s.	n.s.	response rate (urea, creatinine), overall survival	mean improvement in urea level group 1: 43.9%; group 2: 63.3%; group 3: 36.1% mean improvement in creatinine level group 1: 63.3%; group 2: 59.7%; group 3: 48.1% mean overall survival for unilateral PCNs 157.6 days (5.3 months) vs 72.1 days (2.4 months) for bilateral PCNs mean overall survival for group 1: 226.5 days (7.5 months), group 2: 114.3 days (3.8 months), group 3: 56 days (1.9 months)	allocation criteria for initial treatment not described, retrospective analysis, high risk of bias, subgroup analyses invalid due to very small numbers in groups 1 and 2	3
Honnens de Lichtenberg, 1993 [1]	cohort study	88	ureteric obstruction due to PCA, 32 with bilateral obstruction (36%), AD naïve, median age 73 years	diversion (decompression) n = 11 (10 PCN, 1 Stent) plus AD (65% Orchiectomy, 35% Goserelin, Flutamide or Estradiol)	AD, n = 77 (65% Orchiectomy, 35% Goserelin, Flutamide or Estradiol)	n.s.	response rate, overall survival	improvement of ureteric obstruction in 57/103 kidneys (55%) by AD 13/17 kidneys (77%) by diversion 70/120 kidneys (58%) by either intervention median overall survival of patients with diversion 13 months median overall survival of patients with no diversion 26 months	allocation criteria for initial treatment not described, response criteria not stated, retrospective analysis, high risk of bias	2-
Khan, 1975 [13]	case series	34	ureteric bilateral obstruction due to PCA, 16 AD naïve, age n.s.	treatment (n = 25): AD (n = 16) or/and PCN (n	no treatment (n = 9)	n.s.	overall survival	1-year-OS in treatment arm: 5% 1-year-OS in control arm: 0% 1-year OS in treated AD naïve group: 78% 1-year OS in AD pretreated group: 38%	imprecise outcome, retrospective analysis	3

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Markowitz, 1989 [4]	case series	71	ureteric obstruction due to malignancy, 21 PCAs (30%), retrograde stenting had failed, mean age 67 years	= 7) or/and TURP (n = 9) or/and radiotherapy (n = 3) PCN, partly with stent (n = 36) no comparison intervention		n.s.	overall survival, major complications	mean OS of 50 patients (21 lost to follow up): 7 months 3-months-OS 64% 6-months-OS 46% 12-months-OS 25% major complications: arterial injury (n = 1), ureteral perforation and consecutive peritonitis (n = 1), septic shock (n = 1)	incomplete evaluation, retrospective analysis	3
Michigan, 1977 [14]	case series	31	ureteric obstruction due to PCA; 26 with bilateral obstruction (74%), AD naïve, age n.s.	AD (81% Orchiectomy, 19% DES or Cyproterone) no comparison intervention		n.s.	response rate, overall survival	23 responses (74%) 1-Year-OS (all patients) 18/24 (67%) 2-Year-OS (all patients) 8/19 (42%) 1-Year-OS (responders) 15/16 (94%) 2-Year-OS (responders) 7/10 (70%) 1-Year-OS (non-responders) 3/8 (38%) 2-Year-OS (non-responders) 1/8 (13%)	high number of losses to follow up, no comparison intervention, response criteria not stated, retrospective analysis	3
Paul, 1994 [2]	cohort study	36	bilateral ureteric obstruction and renal failure due to PCA; 12 patients (33%) without AD, 24 (67%) with AD before ureteric obstruction, mean age 70 years	12 patients without former AD received AD 0 patients with former AD received other AD 8 patients without former AD received decompression 8 patients with former AD received decompression decompression procedures: 9 PCNs, 5 stents, 2 ureteroneocystostomies		n.s.	overall survival	mean overall survival for patients without former AD vs patients with former AD: 646 days (21.5 months) (SD 786 days) vs 80 days (2.7 months) (SD 87 days) mean overall survival for patients without former AD who received decompression vs no decompression: 839 days (28 months) (SD 901 days) vs 261 days (8.7 months) (SD 269 days) mean overall survival for patients with former AD and decompression vs no decompression: 92 days (3.1 months) (SD 80 days) vs 74 days (2.5 months) (SD 92 days)	retrospective analysis, allocation criteria for compression vs. no compression not described, small numbers, no significant differences, high risk of bias	2-
Richter, 2000 [10]	case series	127	ureteric obstruction due to malignancy, 34 PCAs (27%), mean age 58 years	Stent (Wallstent) in 31 patients (tumour type n.s.) other interventions excluded lt. review protocol		n.s.	success rate (adequate drainage),	success rate 18/31 = 58%	publication included other techniques, which were excluded from review; response criteria not stated, retrospective analysis	3

* according to the classification of the Scottish Intercollegiate Guidelines Network

AD = Androgen depletion treatment; DES = diethylstilbestrol, n.s. = not stated; OS = overall survival, PCA = prostate carcinoma; SD = standard deviation.