

# Urologiczne leczenie paliatywne zaawansowanych raków nerki

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# Nefrektomia

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- Nefrektomia jest metodą umożliwiającą całkowite wyleczenie jedynie wtedy, gdy podczas operacji zostanie usunięty cały guz. Dla większości pacjentów z uogólnionym nowotworem, nefrektomia ma znaczenie wyłącznie paliatywne, i wymagają oni innych metod leczenia ogólnego.

# Metastazektomia

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- Metastazektomia odgrywa istotną rolę w poprawie rokowania pacjentów z rakiem nerki.
- Metastazektomię należy wykonać, o ile zmiany są możliwe do usunięcia a pacjent prezentuje dobry stan ogólny.

# Objawy mRCC

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- Krwiomocz
- Ból okolicy lędźwiowej
  - ucisk masy guza na sąsiadujące narządy:
  - tylna ściana brzucha
  - korzenie nerwów rdzeniowych
  - mięśnie około-wyrostków kolczystych
  - niedrożności moczowodów, spowodowana skrzepami bądź fragmentami tkanki nowotworowej

# Objawy mRCC

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- Objawy choroby uogólnionej:
  - Stany podgorączkowe
  - Spadek masy ciała
  - Hiperkalcemia
  - Niedokrwistości
  - Przyśpieszone OB
  - Nadciśnienie tętnicze
  - Upośledzenie czynności wątroby
  - Uogólnione obrzęki, wodobrzusze
  - Zespół paraneoplazmatycznych
    - do 40% chorych (z wydzielaniem ekotopowym substancji biologicznie czynnych jak: erytropoetyna, fosfataza alkaliczna, ACTH, insulina, aldosteron, gonadotropiny, parahormon, IL-6)

# Postępowanie paliatywne

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- Embolizacja
- Chirurgia - nefrektomia
- Ortopedia / Neurochirurgia
- Radioterapia
- Postępowanie zachowawcze

# Embolizacja

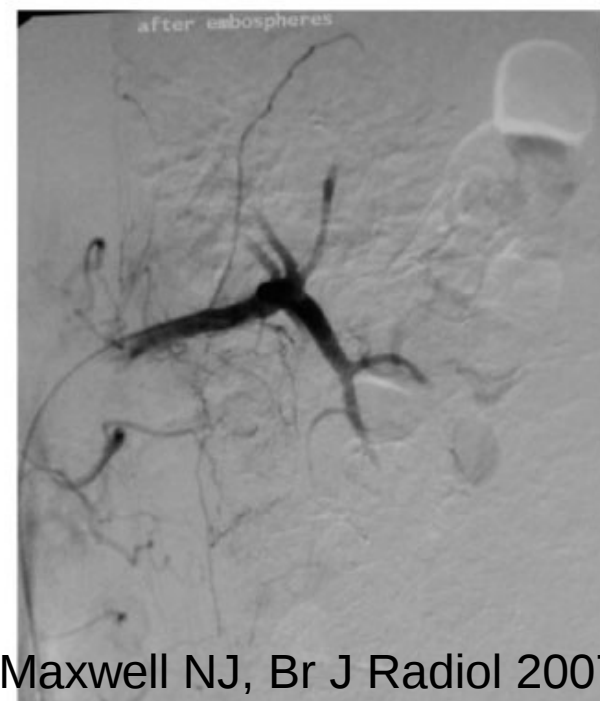
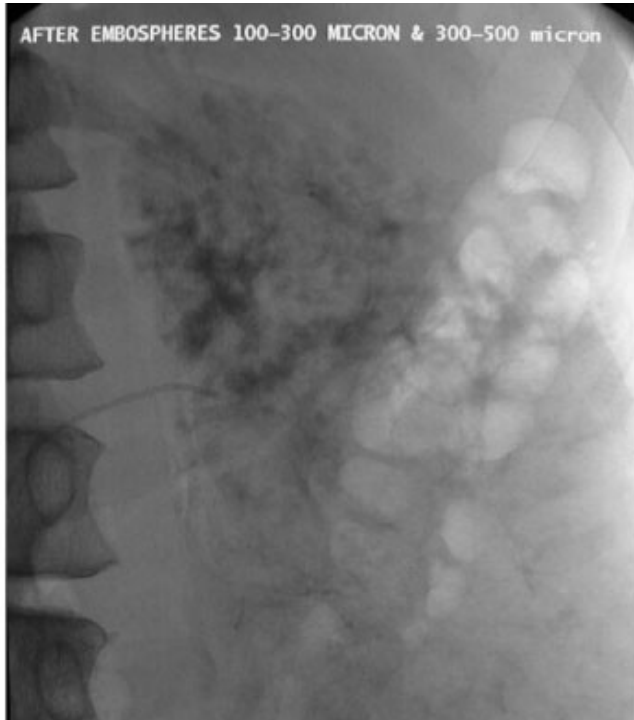
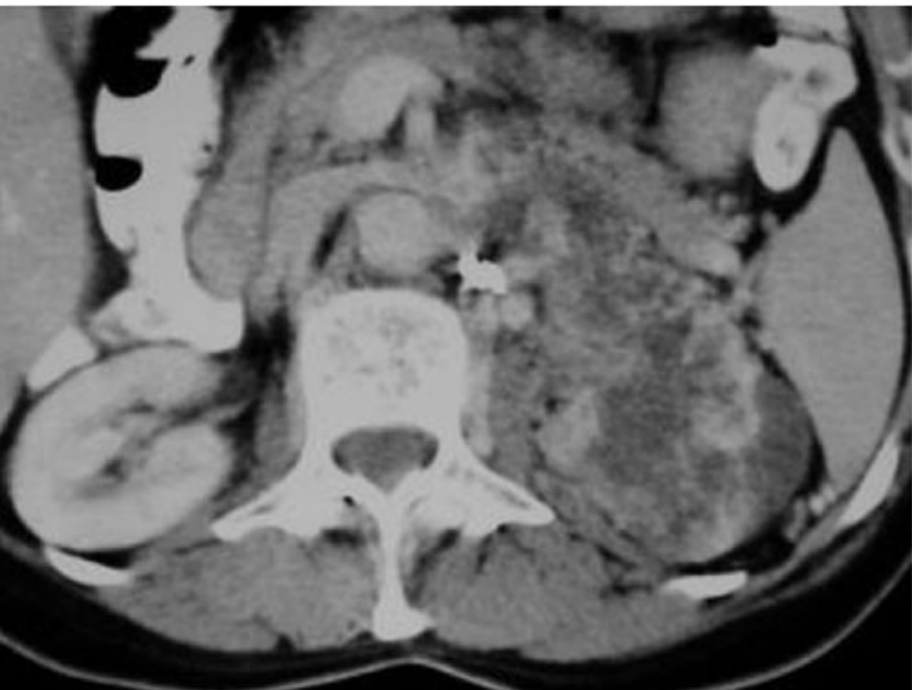
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- Lalli AF, et al. *Roentgen-guided infarctions of kidney and lungs: a potential therapeutic technique*. Radiology 1969;93:434–5
- Embolizacja
  - Zabieg paliatywny (zamiast nefrektomii cytoredukcyjnej)
  - Przed nefrektomią (+/- thrombektomia)
  - Celowana (przerzuty do kości, wznowy)

# Embolizacja paliatywna

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## Renal artery embolisation in the palliative treatment of renal carcinoma

<sup>1</sup>N J MAXWELL, MB, MRCPI, FFR, <sup>1</sup>N SALEEM AMER, MB, FFR, <sup>2</sup>E ROGERS, MB, FRCSI, <sup>2</sup>D KIELY, MB, FRCSI, <sup>2</sup>P SWEENEY, MB, FRCSI and <sup>1</sup>A P BRADY, MB, FRCR, FFR

*Departments of <sup>1</sup>Diagnostic Radiology and <sup>2</sup>Urology, Mercy University Hospital, Grenville Place, Cork, Ireland*

- 7 chorych z dużym krwimoczem wymagającym transfuzji – stabilizacja HB, bez transfuzji
- 9 chorych z wyraźnym bólem ok. lędźwiowej – 8 chorych dolegliwości ustąpiły całkowicie
- Mediana pobytu w szpitalu – 5 dni
- **Embolizacja jest bezpieczną procedurą, dobrze tolerowaną, z krótkim pobytem w szpitalu**

# The Role of Arterial Embolization in Renal Cell Carcinoma

Disa Kalman and Eberhard Varenhorst

From the Department of Surgery and Urology, Vrinnevi Hospital, Norrköping, Sweden

(Submitted November 25, 1998. Accepted for publication December 2, 1998)

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Scand J Urol Nephrol 33: 162–170, 1999

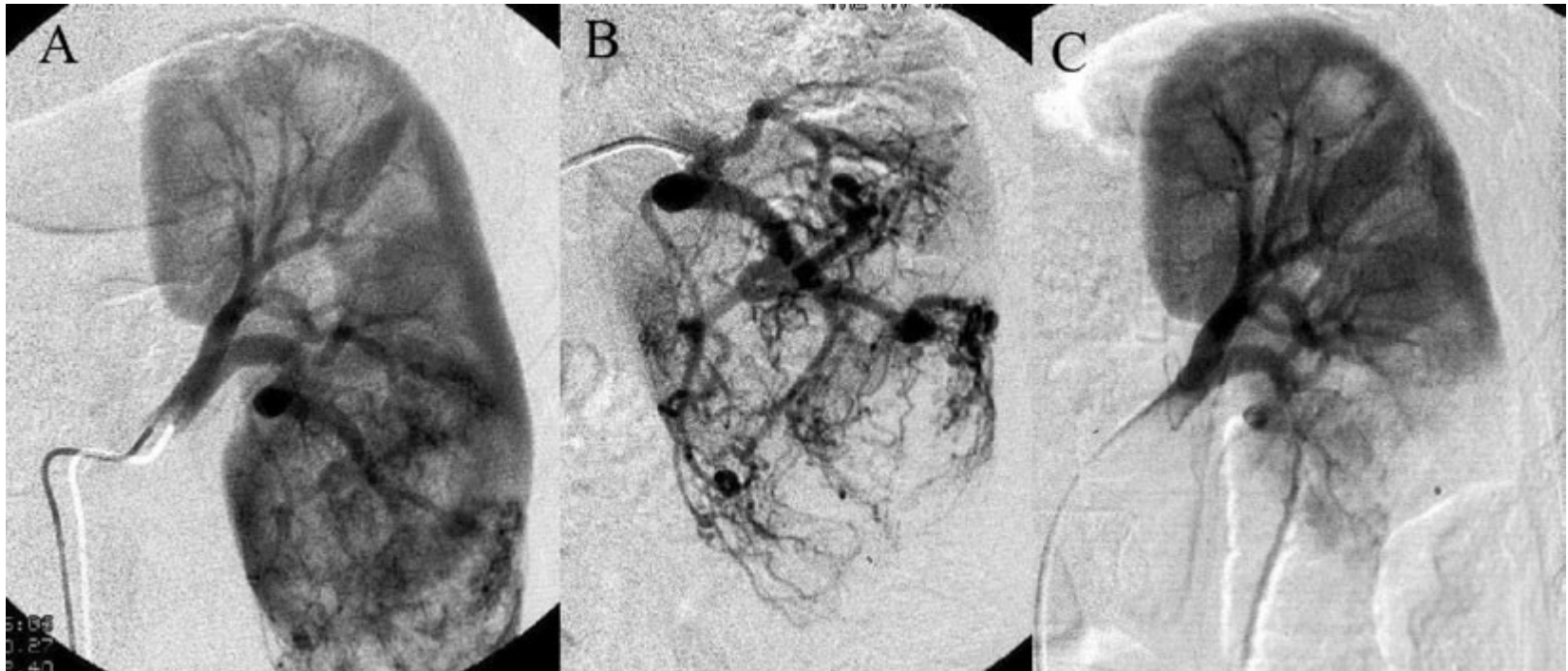
- 13 chorych z nieoperacyjnym guzem nerki, masywnym krwiomoczem i silnymi bólami – u wszystkich chorych objawy i dolegliwości ustąpiły
- 1 chory z hiperlalcemią – normokalcemia
- **U wybranych chorych z masywnym krwiomoczem, bólami ok. lędźwiowej i zespołem paraneoplazmatycznym embolizacja może przynieść istotną poprawę**

# Renal artery embolization: clinical indications and experience from over 100 cases

Michael J. Schwartz, Eric B. Smith, David W. Trost\* and E. Darracott Vaughan Jr

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Accepted for publication 4 October 2006



# Embolizacja paliatywna

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- U pacjentów, których stan zdrowia nie zezwala na zabieg operacyjny, lub u których guz jest niemożliwy do usunięcia, embolizacja pozwala zmniejszyć objawy takie jak krwimocz czy ból w boku

# Embolizacja przed nefrektomią

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## Pre-operative renal arterial embolisation does not provide survival benefit in patients with radical nephrectomy for renal cell carcinoma

<sup>1</sup>M MAY, MD, <sup>1</sup>S BROOKMAN-AMISSAH, MD, <sup>1</sup>S PFLANZ, MD, <sup>2</sup>J ROIGAS, MD, <sup>1</sup>B HOSCHKE, MD and <sup>3</sup>F KENDEL, PhD

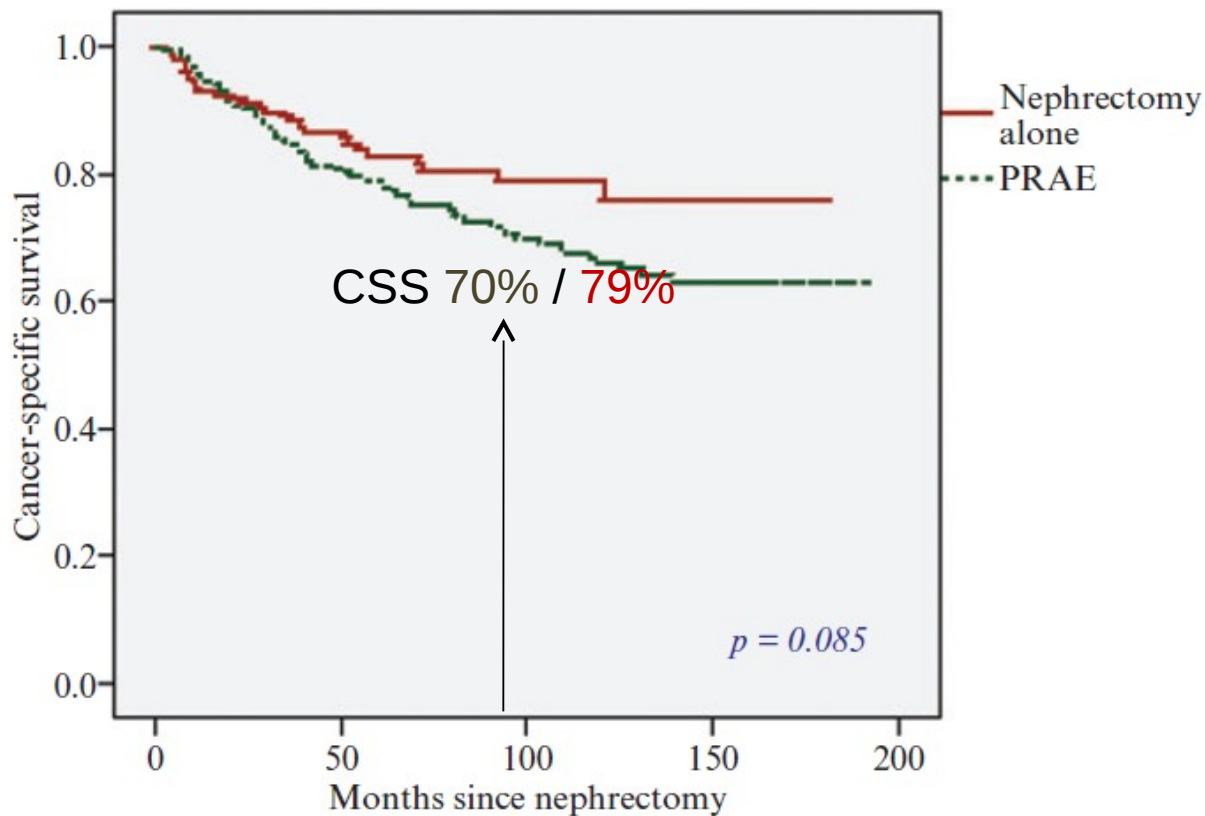
<sup>1</sup>Department of Urology, Carl-Thiem Hospital, Cottbus, Berlin, <sup>2</sup>Department of Urology, Vivantes-Clinic Am Urban, Berlin and <sup>3</sup>Institute of Medical Psychology, Charité - Universitätsmedizin Berlin, Germany

- 189 chorych z nefrektomią
- 189 chorych z embolizacją przed nefrektomią
  - 3,2% niepełna embolizacja, bez poważnych powikłań śród-zabiegowych
- 71% embolizacja 1-3 dni przed nefrektomią
- U 89% zespół po-embolizacyjny o małym lub średnim natężeniu
- Mediana obserwacji 100 m.
- Przetoczenie krwi 61% vs 24% ( $p < 0,01$ )

## Pre-operative renal arterial embolisation does not provide survival benefit in patients with radical nephrectomy for renal cell carcinoma

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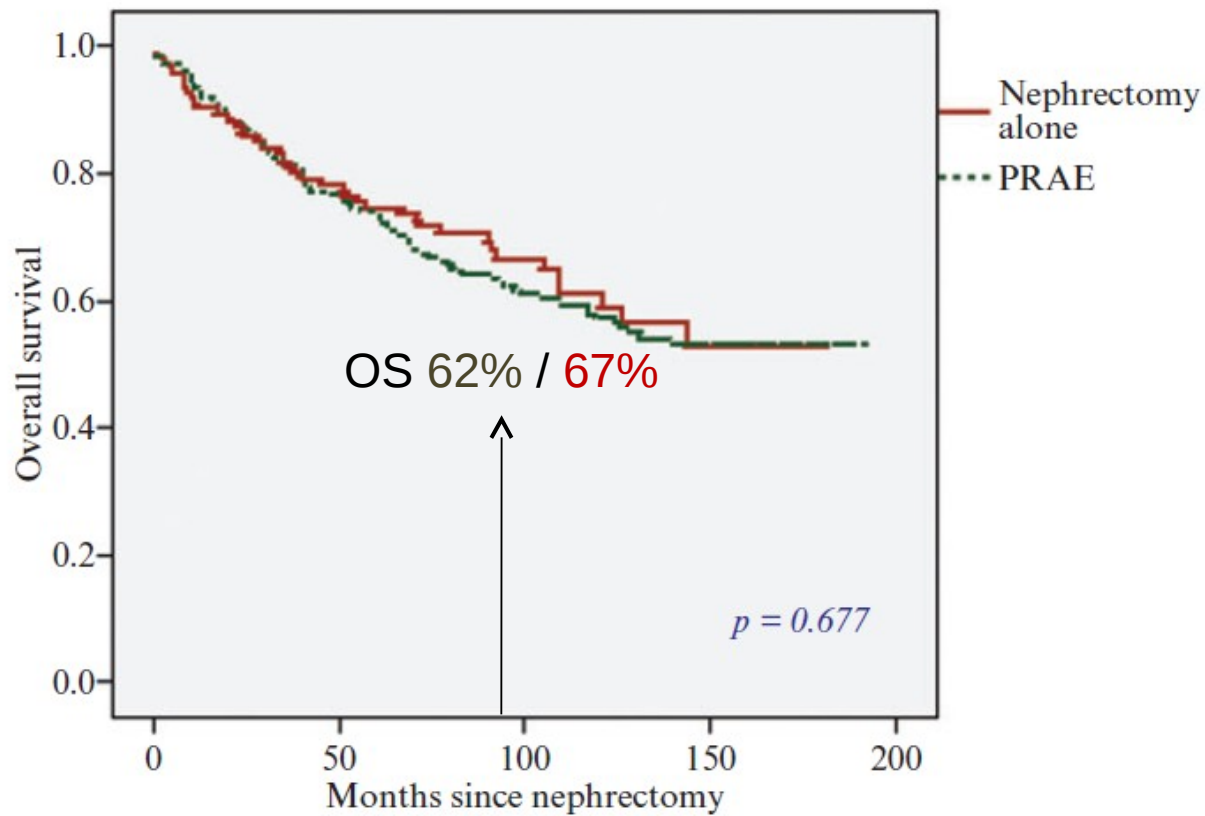
**Figure 2.** Cancer-specific survival stratified according to status of pre-operative percutaneous renal artery embolisation (PRAE) in 378 patients with renal cell carcinoma (matched groups).



## Pre-operative renal arterial embolisation does not provide survival benefit in patients with radical nephrectomy for renal cell carcinoma

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**Figure 3.** Overall survival stratified according to status of pre-operative percutaneous renal artery embolisation (PRAE) in 378 patients with renal cell carcinoma (matched groups).

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**Table 3.** Cancer-specific survival in the total group of matched patients with renal cell carcinoma (n=378): univariate and multivariate Cox regression analysis

Variable	Hazard ratio	95% CI	p-Value
<b>Univariate analysis</b>			
Age ( $\leq 60$ years vs $> 60$ years)	1.04	0.69–1.57	0.854
Gender (male vs female)	0.77	0.50–1.19	0.244
pT stage (5 grades)	1.69	1.44–1.97	$< 0.001$
pN stage (pN0/pNx vs pN+)	8.30	4.49–15.34	$< 0.001$
cM stage (M0 vs M1)	9.60	5.64–16.34	$< 0.001$
Grading (3 grades)	3.22	2.00–5.16	$< 0.001$
Tumour size ( $\leq 5$ cm vs $> 5$ cm)	3.63	1.93–6.82	$< 0.001$
MVI (absent vs present)	3.09	1.95–4.91	$< 0.001$
PRAE (Group 1 vs Group 2)	0.68	0.44–1.06	0.087
<b>Multivariate analysis</b>			
pT stage (5 grades)	1.56	1.22–1.99	$< 0.001$
pN stage (pN0/pNx vs pN+)	3.25	1.72–6.15	$< 0.001$
cM stage (M0 vs M1)	9.56	5.31–17.24	$< 0.001$
Grading (3 grades)	1.72	1.04–2.84	0.033
Tumour size ( $\leq 5$ cm vs $> 5$ cm)	2.29	1.19–4.41	0.013
MVI (absent vs present)	0.89	0.45–1.76	0.739

CI, confidence interval; PRAE, percutaneous renal artery embolisation.

## Pre-operative renal arterial embolisation does not provide survival benefit in patients with radical nephrectomy for renal cell carcinoma

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**Table 4.** Overall survival in the total group of matched patients with renal cell carcinoma ( $n=378$ ): univariate and multivariate Cox regression analysis

Variable	Hazard ratio	95% CI	p-value
<b>Univariate analysis</b>			
Age ( $\leq 60$ years vs $>60$ years)	1.35	0.96–1.89	0.086
Gender (male vs female)	0.76	0.53–1.09	0.131
pT stage (5 grades)	1.57	1.39–1.78	$<0.001$
pN stage (pN0/pNx vs pN+)	5.75	3.23–10.25	$<0.001$
cM stage (M0 vs M1)	7.29	4.56–11.67	$<0.001$
Grading (3 grades)	3.12	2.11–4.61	$<0.001$
Tumour size ( $\leq 5$ vs $>5$ cm)	2.63	1.67–4.15	$<0.001$
MVI (absent vs present)	2.72	1.84–4.01	$<0.001$
PRAE (Group 1 vs Group 2)	0.93	0.66–1.32	0.678
<b>Multivariate analysis</b>			
pT stage (5 grades)	1.44	1.18–1.76	$<0.001$
pN stage (pN0/pNx vs pN+)	2.40	1.32–4.36	0.004
cM stage (M0 vs M1)	6.77	4.06–11.29	$<0.001$
Grading (3 grades)	1.87	1.24–2.82	0.003
Tumour size ( $\leq 5$ vs $>5$ cm)	1.74	1.08–2.81	0.023
MVI (absent vs present)	0.94	0.54–1.66	0.836

CI, confidence interval; MVI, microvascular invasion; PRAE, percutaneous renal artery embolisation.

# Embolizacja przed nefrektomią

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- Nie istnieją korzyści z embolizacji guza wykonanej przed rutynową nefrektomią

# Embolizacja przed nefrektomią z usunięciem czopa nowotworowego

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## Utility of Preoperative Renal Artery Embolization for Management of Renal Tumors With Inferior Vena Caval Thrombi

Vairavan S. Subramanian, Andrew J. Stephenson, David A. Goldfarb, Amr F. Fergany, Andrew C. Novick<sup>†</sup>, and Venkatesh Krishnamurthi

- 135 chorych nefrektomia z thrombektomią + embolizacja (24h przed zabiegiem)
- 90 chorych nefrektomia z thrombektomią
- czop III lub IV występował u 67% z embolizacja vs. 48% bez embolizacji

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Vairavan S. Subramanian, Andrew J. Stephenson, David A. Goldfarb, Amr F. Fergany, Andrew C. Novick<sup>†</sup>, and Venkatesh Krishnamurthi

**Table 4.** Multivariate analysis of outcome variables significant on univariate analysis

Outcome	Predictor	OR or RC	95% CI	P Value
Postoperative complications (total)	ASA score	1.2	0.7-2.1	.5
	Age	1.01	0.99-1.04	.3
	Preoperative embolization	1.6	0.9-2.9	.13
	High IVC thrombus level (III-IV)	2.0	1.1-3.7	.027
	Tumor size	1.0	0.9-1.1	.7
Postoperative complications (high grade)	ASA score	1.9	0.8-4.2	.13
	Age	1.01	0.99-1.04	.3
	Preoperative embolization	1.6	0.9-2.9	.098
	High IVC thrombus level (III-IV)	2.2	1.2-3.9	.01
	Blood transfusion (total)	3.6	-0.3-7.5	.073
Operative time	ASA score	0.06	-0.12-0.24	.5
	Preoperative embolization	3.9	-0.5-8.2	.08
	High IVC thrombus level (III-IV)	8.7	4.2-13.2	<.001
	ASA score	38	11-65	.006
	Age	-0.9	-2.2-0.3	.14
ICU stay	Preoperative embolization	38.9	8.9-70	.012
	High IVC thrombus level (III-IV)	102	71-133	<.001
	ASA score	2.6	0.6-4.7	.011
	Age	0.13	0.04-0.22	.006
	Preoperative embolization	1.12	-1.05-3.4	.3
Perioperative death	High IVC thrombus level (III-IV)	2.23	-0.06-4.6	.056
	ASA score	1.2	0.4-3.2	.7
	Age	1.05	0.99-1.1	.076
	Preoperative embolization	5.5	1.2-25.6	.029
	High IVC thrombus level (III-IV)	2.0	0.6-6.8	.3

OR = odds ratio; RC = regression coefficient; CI = confidence interval; ASA = American Society of Anesthesiology; IVC = inferior vena cava; ICU = intensive care unit.

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	High IVC thrombus level (III-IV)	102	71-133	<.001
	ASA score	2.6	-0.6-4.7	.041
ICU stay	Age	0.13	0.04-0.22	.006
	Preoperative embolization	1.12	-1.05-3.4	.3
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- **Brak korzyści chirurgicznych z wykonanej embolizacji przed nefrektomią**
  - U niektórych chorych embolizacja może zwiększać powikłania:
    - Zgony okołoperacyjne (OR 5.5; p 0.029)
      - *(dewaskularyzacja czopa nowotworowego)*
  - **Embolizacja nie wpływa na:**
    - Zmniejszenie wielkości czopa ( $\downarrow 4$ ,  $\uparrow 17$ )
    - Zmniejszenie przetoczeń krwi (*8j. vs 4j.*)
      - *(krwawienie z naczyń obocznych)*
    - **Czas operacji** (*390 min vs 313min*)
    - **Powikłania pooperacyjne** (*43% vs 29%*)

# Embolizacja selektywna

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ORIGINAL ARTICLE

**Selective palliative transcatheter embolization of bony metastases from renal cell carcinoma**

ANDREW R. FORAUER<sup>1</sup>, ELIZABETH KENT<sup>2</sup>, WOJCIECH CWIKIEL<sup>1</sup>,  
PEGGY ESPER<sup>2</sup> & BRUCE REDMAN<sup>2</sup>

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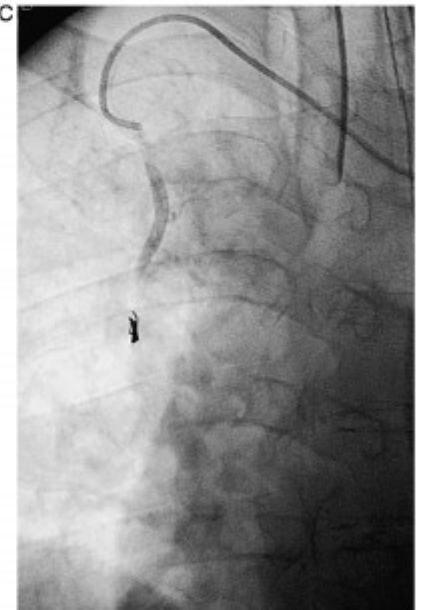
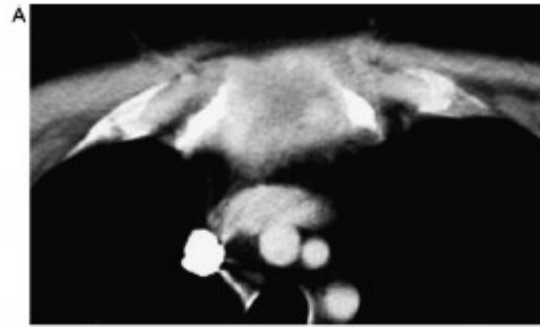
- 21 chorych - 30 embolizacji w 39 zmianach przerzutowych do kości
  - 18 miednica
  - 8 kończyny dolne
  - 3 kończyny górne
  - 5 żebra
  - 5 kręgosłup
- Odpowiedź oceniana poprzez ilość stosowanych środków p-bólowych
- Czas odpowiedzi – 5,5 m.

ORIGINAL ARTICLE

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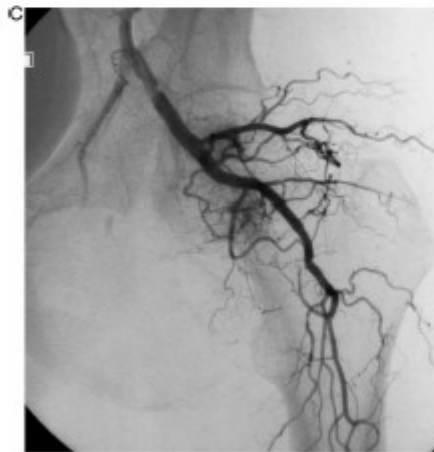


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ORIGINAL ARTICLE

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- **Embolizacja selektywna w przerzutach do kości przynosi korzyści paliatywne u wybranych chorych, u których jest ograniczone inne postępowanie terapeutyczne**

- 
- U wybranych pacjentów z bolesnymi przerzutami do kości czy okolicy przykręgosłupowej embolizacja może zmniejszyć nasilenie dolegliwości bólowych

# Embolizacja selektywna + ortopedia

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PREOPERATIVE EMBOLIZATION OF HYPERVASCULAR SPINAL  
METASTASES USING PERCUTANEOUS DIRECT INJECTION WITH  
N-BUTYL CYANOACRYLATE: TECHNICAL CASE REPORT

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Reprint requests:

Adel M. Malek, M.D., Ph.D.,

**OBJECTIVE:** Intraoperative blood loss constitutes a major cause of perioperative morbidity in surgical decompression and reconstruction of highly vascular spinal metastatic tumors. We propose a technique for embolization of highly vascular vertebral metastases using percutaneous direct injection using n-butyl cyanoacrylate (NBCA) instead of polymethylmethacrylate to complement preoperative transarterial embolization and to minimize operative blood loss.

**METHODS:** Five patients with renal cell carcinoma metastases to the spine (one cervical, one thoracic, and three lumbar) underwent embolization by percutaneous direct injection of the affected vertebrae with a mixture of NBCA and iodized oil to supplement transarterial embolization with polyvinyl alcohol particles and fibered platinum coils. This was achieved via a transpedicular approach in four cases and by direct vertebral body puncture in one case.

**RESULTS:** The percutaneous NBCA direct injection procedure was technically successful in all cases and was not associated with neurological or medical complications. All patients underwent subsequent vertebrectomy and spinal instrumentation. Surgical resection was performed with lower than expected blood loss and with a subjective improvement in tumor tissue handling and dissection.

**CONCLUSION:** The extent of tumor devascularization can be improved by supplementing transarterial embolization with NBCA direct injection to decrease operative blood loss and increase the safety of surgical resection and stabilization of highly vascular spinal metastases.

**KEY WORDS:** Embolization, n-butyl cyanoacrylate, Renal cell carcinoma metastasis, Vertebrectomy, Vertebroplasty

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- 5 chorych z przerzutami do kręgosłupa
- Embolizacja selektywna z **N-butyl cyanoacrylate** 0-4 dni przed zabiegiem
- Następnie chirurgiczne usunięcie zmienionych kręgów, stabilizacja

## PREOPERATIVE EMBOLIZATION OF HYPERVASCULAR SPINAL METASTASES USING PERCUTANEOUS DIRECT INJECTION WITH N-BUTYL CYANOACRYLATE: TECHNICAL CASE REPORT

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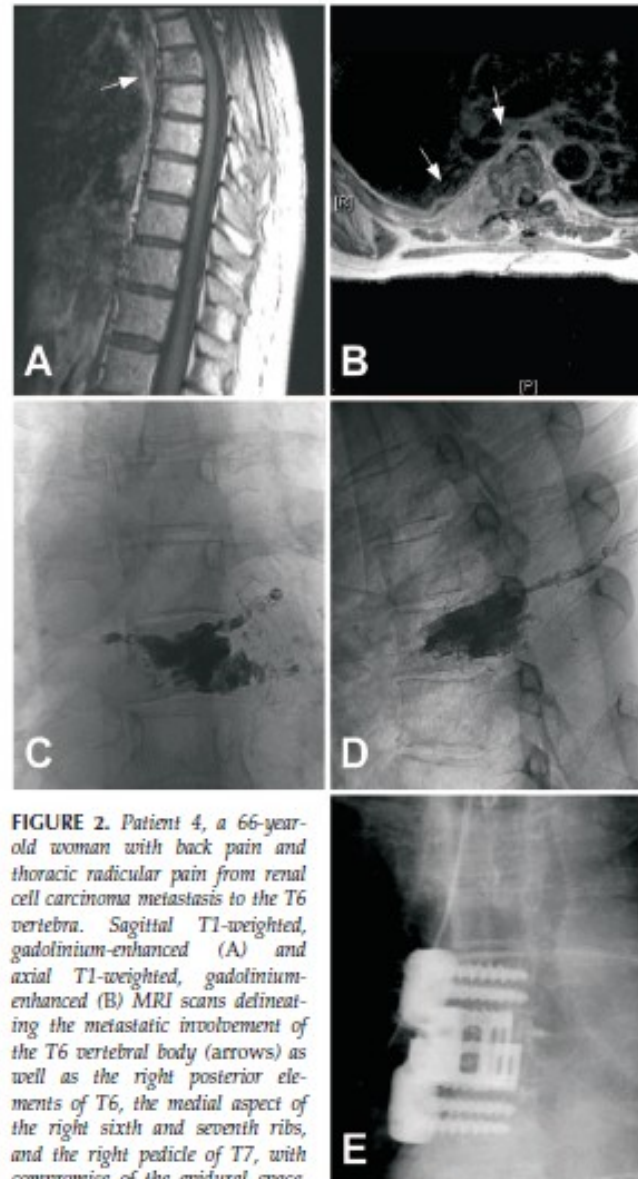
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**FIGURE 2.** Patient 4, a 66-year-old woman with back pain and thoracic radicular pain from renal cell carcinoma metastasis to the T6 vertebra. Sagittal T1-weighted, gadolinium-enhanced (A) and axial T1-weighted, gadolinium-enhanced (B) MRI scans delineating the metastatic involvement of the T6 vertebral body (arrows) as well as the right posterior elements of T6, the medial aspect of the right sixth and seventh ribs, and the right pedicle of T7, with compromise of the epidural space. Anteroposterior (C) and lateral (D) digital fluorography showing the extent of the percutaneous NBCA direct injection performed at T6. E, Anteroposterior x-ray demonstrating postoperative result with the TPS-TL device in position.

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- Wykorzystanie N-butyl cyanoacrylate jako materiału do embolizacji jest bezpieczne i skuteczne w zmianach przerzutowych do kręgosłupa
- Embolizacja unaczynionych zmian przerzutowych umożliwia bezpieczne przeprowadzenie resekcji zmian i stabilizację kręgosłupa

- 
- Embolizacja przed resekcją bogato unaczynionych przerzutów do kości czy kręgosłupa może zmniejszyć krwawienie śródoperacyjne

# Ortopedia paliatywna

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## METASTATIC RENAL CELL CARCINOMA OF BONE: INDICATIONS AND TECHNIQUE OF SURGICAL INTERVENTION

YEHUDA KOLLENDER, JACOB BICKELS, WILLIAM M. PRICE, KRISTEN L. KELLAR, JUZA CHEN,  
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Israel, and Department of Orthopedic Oncology, Washington Cancer Institute, Washington Hospital Center, George Washington  
University, Washington, D. C.*

- 45 chorych, 56 zmian przerzutowych
- Wskazania do operacji (resekcja):
  - pojedyncze zmiany przerzutowe w kościach,
  - bardzo duże dolegliwości bólowe,
  - złamania patologiczne

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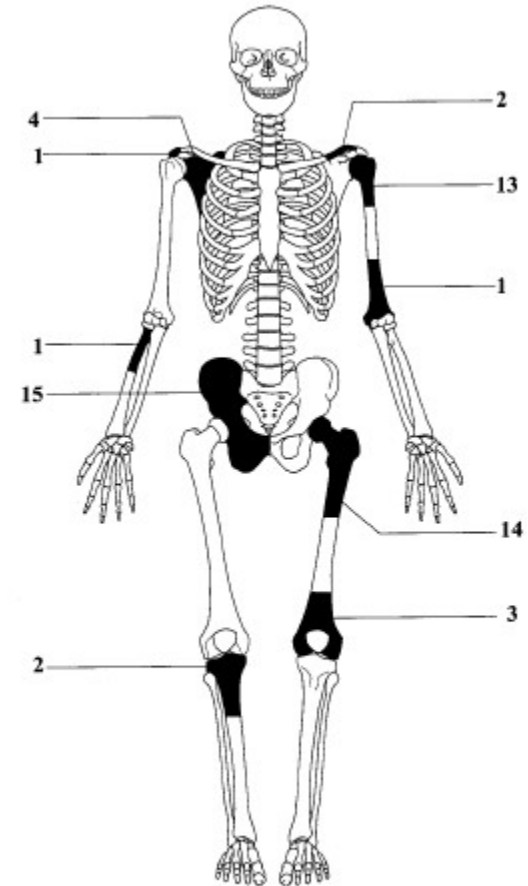
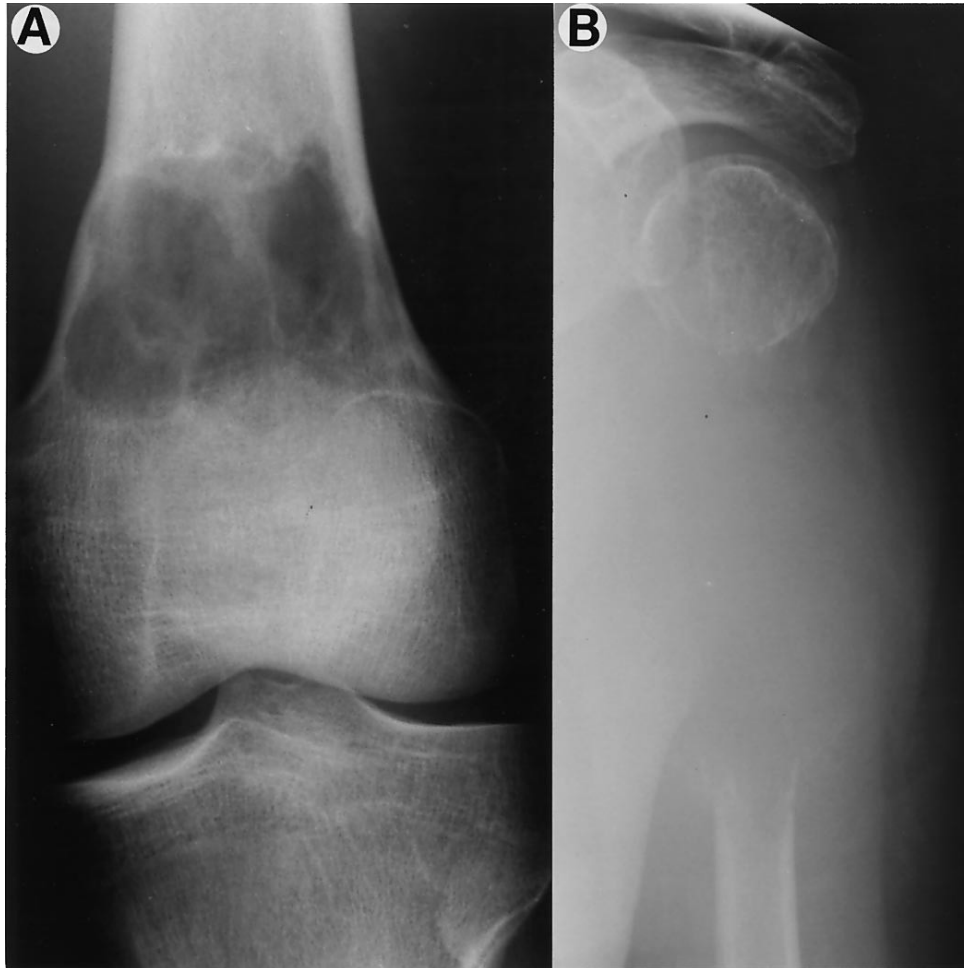


FIG. 2. Anatomical site of 56 metastatic renal cell carcinoma bone lesions treated with surgery. 1, acromion, distal humerus, proximal radius. 2, clavicle, proximal tibia. 3, distal femur. 4, scapula. 13, proximal femur. 14, proximal femur. 15, pelvis.

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- U 91% chorych znacząco zmniejszyły się dolegliwości bólowe
- 89% chorych miało dobre lub bardzo dobre wyniki czynnościowe



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TABLE 2. *Indications for surgical intervention and patient survival after excision of renal cell carcinoma metastatic to bone*

Postop. Survival (yrs.)	No. Solitary Metastasis	No. Intractable Pain	No. Impending or Present Pathological Fracture	Total No.
<1	1	7	8	16
1-2	1	3	3	7
2-3	1	2	2	5
3-4	3	3	2	8
4-5	2	1	2	5
>5	3	0	1	4
Total	11	16	18	45

- Pacjenci z pojedynczymi przerzutami - 73% przeżycie 3-letni
- Pacjenci z bardzo dużymi dolegliwościami bólowymi – 25% przeżycie 3-letnie
- Pacjenci ze złamaniami patologicznymi – 28% przeżycie 3-letnie
  
- 64% pacjentów przeżyło więcej niż 1,22 lata

## METASTATIC RENAL CELL CARCINOMA OF BONE: INDICATIONS AND TECHNIQUE OF SURGICAL INTERVENTION

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- **Chirurgiczne usunięcie zmian przerzutowych do kości wyraźnie zmniejsza dolegliwości bólowe, zachowuje dobre funkcje czynnościowe narządu u chorych z bardzo dużymi dolegliwościami bólowymi lub złamaniami patologicznymi**

# Radioterapia

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## **Radiotherapy of Metastases from Renal Cancer**

*Sophie Dorothea Fosså, Ildri Kjøseth, Gunnar Lund*

General Department and Department of Diagnostic Radiology, The Norwegian Radium Hospital, Oslo, Norway

- 27 chorych, 30 naświetlań
- Zmiany przerzutowe zlokalizowane w:
  - 13 kręgosłup
  - 8 śródpiersie, płuca
  - 7 jama brzuszna
  - 1 w/ch nadobojczykowe
  - 1 ok. potyliczna
- Radioterapia: 30-40Gy, 2-4 tygodnie
- Efekt terapeutyczny trwający kilka miesięcy

## Radiotherapy of Metastases from Renal Cancer

*Sophie Dorothea Fosså, Ildri Kjølseth, Gunnar Lund*

General Department and Department of Diagnostic Radiology, The Norwegian Radium Hospital, Oslo, Norway

**Table I.** Subjective response to palliative radiotherapy in patients with advanced renal cancer

Symptom	Total number of evaluable patients	Number of patients with subjective improvement
Bone pain	12	10
Dyspnea	3	2
Abdominal pain	4	4
Total	19	16

**Table II.** Objective response to irradiation in 26 metastatic tumor manifestations from renal cancer

Localization	Total	Regression	Progression	No change
Skeleton	9	4	2	3
Lung/mediastinum	8	4	1	3
Abdomen	7	5		2
Soft tissue	2		2	
Total	26	13	5	8

- 
- Radioterapia może być wykorzystana u wybranych pacjentów z nieresekcyjnymi zmianami mózgu lub kości, którzy nie odpowiadają na ukierunkowane leczenie systemowe

- 
- Rola nefrektomii cytoredukcyjnej u chorych, którzy nie odpowiedzieli na „*up-front*” leczenie molekularnie ukierunkowane

