

# Titanium Greenfield Inferior Vena Cava Filter:

1

titanium Greenfield

3

12 titanium Greenfield

가 6 , 가 3 , 3 ,

titanium Greenfield (100%). 10

(83%) , 2 (17%) . 8 (67%)

, 4 (33%)

가 가 3 (25%), 가 1 (8%) . 2

5

titanium Greenfield

30%

8%

60 - 70%

(4, 5). 1980

가 15%

(1).

(6).

(7, 8) titanium

70% Greenfield titanium

Greenfield

(2).

가 (2, 3). 1960

1996 6 1999 11 3 titanium

Greenfield (Boston scientific, Boston, U.S.A.)

12 가

가 8 , 21 - 74 50

가

2000 5 31

2000 9 15

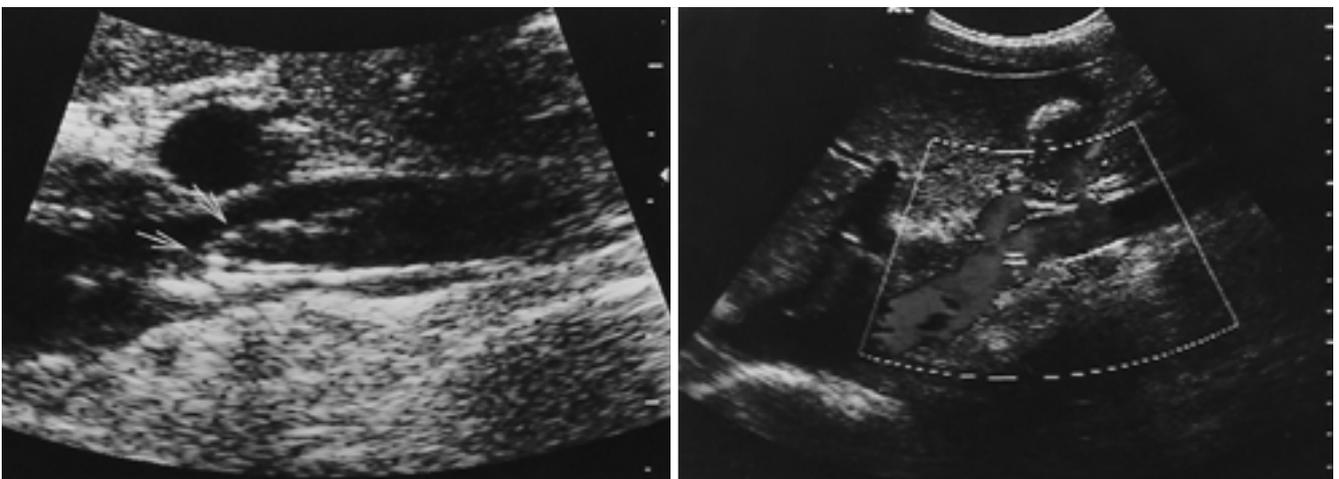
: Titanium Greenfield Inferior Vena Cava Filter

X- , , CT  
 가 6 ,  
 3 ,  
 가 3 .  
 2 titanium Greenfield  
 CT 가 . (100%). (retroaortic)  
 (circumaortic)  
 (8 ), (2 ), . 10 (83%)  
 (10 ) 4 2 (17%)  
 8  
 (polycythemia vera), 4  
 (hyperhomocysteinemia)가 1  
 (limb)가 가 3 (25%)  
 가 1 (8%)  
 가 3 5Fr Cobra  
 (Cook, Bloomington, U.S.A.)  
 X- 1 가  
 (15-20 )  
 (Fig. 1).  
 , 20 가  
 mm 가  
 2 3 4 29  
 . 2 CT



**Fig. 1.** A 21-year-old man with extensive deep vein thrombosis in his lower extremities.  
**A.** Pre-filtering cavogram shows patent vena cava with normal diameter. Levels of renal veins (arrows) are well delineated.  
**B.** Plain radiograph immediately after filtering shows optimal position of the filter with evenly opened legs.  
**C.** Post-filtering cavogram shows good blood flow through the filter. There is no extravasation of contrast media.

5 stainless steel (14), titanium Greenfield 가 X- 가 . Bird's nest , Vena Tech - LGM , Simon - nitinol titanium Greenfield 가 가 . titani - um Greenfield stainless steel Greenfield , 6 12F (carrier) 15F (sheath) 가 , 50 mm , 38 mm (15). 180 ° (reversed hook)가 가 가 70% 가 가 (9 - 11). 가 (15). 가 (10). 가 (16, 17). 가 가 가 90% 가 가 가 (12, 13). 가 MRI 가 가 가 (artifact) 가 가 가 titanium 28 mm titanium Greenfield (18).



**A**  
**Fig. 2.** 2-year-follow up, in same patient with the Fig. 1.  
**A.** Ultrasonogram shows well positioned filter(arrows) in the cava, without evidence of caval thrombosis or perforation.  
**B.** Color doppler ultrasonogram shows good blood flow through the filter.

(megacava) 2 Bird's nest Greenfield  
 (19). (access)가 , 가  
 가 , , (18). 가  
 um Greenfield . Greenfield (20) titani- 3%,  
 8.7% , titanium Greenfield  
 100% . (kinking)  
 (opening)  
 . Greenfield (20, 21) 가  
 가 5.4% ,  
 가 25% Cobra  
 가  
 (18), 가  
 (22), 가  
 가 ,  
 CT (5 )  
 가  
 가  
 titanium Greenfield  
 가

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## Titanium Greenfield Inferior Vena Cava Filter: Effectiveness of Percutaneous Placement for Prevention of Pulmonary Embolism<sup>1</sup>

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**Purpose:** To evaluate the effectiveness of percutaneous placement of a Greenfield titanium filter in the inferior vena cava (IVC) for the prevention of pulmonary embolism (PE) in patients with deep vein thrombosis (DVT).

**Materials and Methods:** Twelve patients with DVT underwent percutaneous Greenfield titanium filter placement. The indications included recurrent pulmonary embolism or failed anticoagulation therapy in six patients, extensive PE in three, and prophylaxis for high risk of PE in the remaining three. In all cases the filter was positioned after confirming the anatomy, patency, and presence of thrombosis of the IVC and renal veins by inferior vena cavography. Long-term follow-up study involved clinical evaluation, plain radiography, Doppler ultrasonography and CT scanning.

**Results:** Filter placement [infrarenal in ten patients (83%) and suprarenal in two (17%)] was technically successful in all cases (100%). The venous approach involved the right femoral vein in eight patients (67%) and the right internal jugular vein in four (33%). Complications included overlapping of the filter legs in three patients (25%), and misplacement in one (8%). After filter placement, no further PE developed. In all of five patients followed up for two years, the IVC maintained patency without evidence of caval perforation or occlusion.

**Conclusion:** In patients with DVT, percutaneous placement of a Greenfield titanium filter is a safe and effective method for the prevention of PE.

**Index words :** Venae cavae, filters  
Veins, thrombosis  
Embolism, pulmonary

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