عنوان مقاله:

Fabrication of Spiral Stent with Superelastic/ Shape Memory Nitinol Alloy for Femoral Vessel

محل انتشار:

ماهنامه بین المللی مهندسی, دوره 30, شماره 7 (سال: 1396)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

Stent is a metal mesh tube for opening the obstructed vessels of the body. Ni-Ti alloy is a suitable metal for fabrication of stent due to its potential for applying the appropriate stress and strain to thevessel walls. In this study, super-elastic Nitinol wire was used to build stent samples usable to open femoral vessel. Ageing was performed at 500°C for different periods of time to determine the mostappropriate transformation temperatures and shape memory/superelasticity behavior of the sample. Mechanical and structural properties of the alloy were determined by differential scanning calorimetry(DSC), electron probe micro analysis (EPMA) and metallographic studies. Ability to stand vessel wall pressure was studied by crush test. Images of scanning electron microscope (SEM) showed that thesurface integrity was not affected by strain. The artificial silicon vessel in Simulated Body Fluid (SBF) at 37°C was used for implanting of the crimped stent. The recovery of strain and exertion of stress tothe vessel wall was investigated after removal of the stent from the catheter.

کلمات کلیدی:

Nickel-titanium Alloy,Shape Memory,Superelasticity,Stent ,Orthodontic Wire,