



US005653683A

United States Patent [19]

[11] Patent Number: **5,653,683**

D'Andrea

[45] Date of Patent: **Aug. 5, 1997**

[54] **INTRACAVITARY CATHETER FOR USE IN THERAPEUTIC RADIATION PROCEDURES**

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[21] Appl. No.: **395,865**

[22] Filed: **Feb. 28, 1995**

[51] Int. Cl.⁶ **A61B 17/36**

[52] U.S. Cl. **604/21; 600/2; 600/3**

[58] Field of Search 604/21, 20, 28, 604/49, 96; 600/2, 3, 6, 7

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,861,380	1/1975	Chassagne et al. .	
4,323,055	4/1982	Kubiatowicz .	
4,631,415	12/1986	Sauerwein et al. .	
4,733,653	3/1988	Leung et al. .	
4,861,520	8/1989	van't Hooft et al. .	
4,881,937	11/1989	van't Hooft et al.	600/3
4,881,938	11/1989	van't Hooft .	
4,897,076	1/1990	Puthawala	600/7
4,969,863	11/1990	van't Hooft et al.	600/3
5,090,043	2/1992	Parker et al.	378/121
5,106,360	4/1992	Ishiwara et al.	600/2
5,411,466	5/1995	Hess	600/3
5,503,613	4/1996	Weinberger	600/3

OTHER PUBLICATIONS

"Protect Delicate Pelvic Tissues with E-Z-EM's Shadow-Form™ Markers for Radiation Oncology", E-Z-EM Product Update, E-Z-EM, Inc., 1993.

"The Nucletron Difference —High Dose Rate Brachytherapy", brochure through p. 9, Nucletron Corporation, 1992.

Omnitron, "The New Generation of High Dose Rate Remote Afterloaders", brochure, Omnitron International Inc., 1991. "Brachytherapy Interstitial & Intracavitary Applicators & Accessories", catalog 9301, Mick Radio-Nuclear Instruments, Inc.

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[57] **ABSTRACT**

The present invention provides a significantly improved therapeutic tool for radiation therapy in or near body cavities accessible through existing orifices. At least one therapeutic balloon of a catheter and balloon assembly is inflated by fluid communication through the catheter. Several embodiments provide radiation therapy, at times in association with one or more of formation of seals, control of movement, nutrient passage and drainage. The radiation therapy is provided by means of rods or other radiotherapeutic items secured, positioned or inserted along the contour of the surface of the therapeutic balloon and which are thus deployed to treatment position by balloon inflation. Control of movement can be achieved through the use of a small balloon usually located where the body cavity changes size, such as at the body orifice; through the use of a template, which may be sutured to nearby tissue or secured with tether catheter assemblies inserted in other body cavities; through the use of a catheter lead which is inserted into narrow portions of a body cavity; or through the use of a secondary balloon located distally of the larger therapeutic balloon. Drainage, often required when performing this procedure in the bladder or rectum, is achieved by the use of a Foley-type catheter. Feeding, inhalation and exhalation are permitted through a communication channel within the catheter.

24 Claims, 4 Drawing Sheets

