
A NEW METHOD USED IN CORONARY BYPASS SURGERY TO HAVE BLOODLESS ANASTOMOTIC AREA

G. İPEK, M. D.
Ö. İŞİK M.D.
and
C. YAKUT, M. D.

Hypothermic crystalloid cardioplegia which still is used in some centers was the best method for the view of surgical confort and bloodless surgical area. It had been used for many years in our center also. However while performing retrograde blood cardioplegia or operating on a beating heart, blood stream in the anastomotic area is a technical difficulty for the surgeon. In order to overcome this problem, five different methods have been used. Among these methods blowing oxygen or medical air delivery method which gives the best surgical visual area has no complication, is being used routinely in our clinic these times.

From: Koşuyolu Heart and
Research Center, Koşuyolu,
İstanbul
Türkiye

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**Adress for
reprints:**
G. İPEK, MD.
Koşuyolu Heart and
Research Center, Koşuyolu,
İstanbul, Türkiye

Coronary artery bypass grafting (CABG) on the beating heart without cardiopulmonary bypass (CPB) has been performed succesfully on selected cases recently. Especially a selected group of patients can undergo CABG without CPB support. Despite certain technical limitations, this method has proved to be quite usefull in isolated revascularization of the LAD and/or right coronary artery lesions. One of the major difficulties encountered in performing the operation on the beating heart is the continous coronary blood flow at the site of coronary anastomosis¹⁻³. We encounter the same problem with continuous retrograde blood cardioplegia, and with the fibrilating heart technique in coronary anastomosis^{4,5}. Using a coronary sucker in this situation may cause mechanical trauma to the intima layer of the native coronary artery. Blowing the blood with compressed air and 100% saturated O₂ instead of aspirating is a practical and safer method in overcoming the continous coronary blood flow problem.

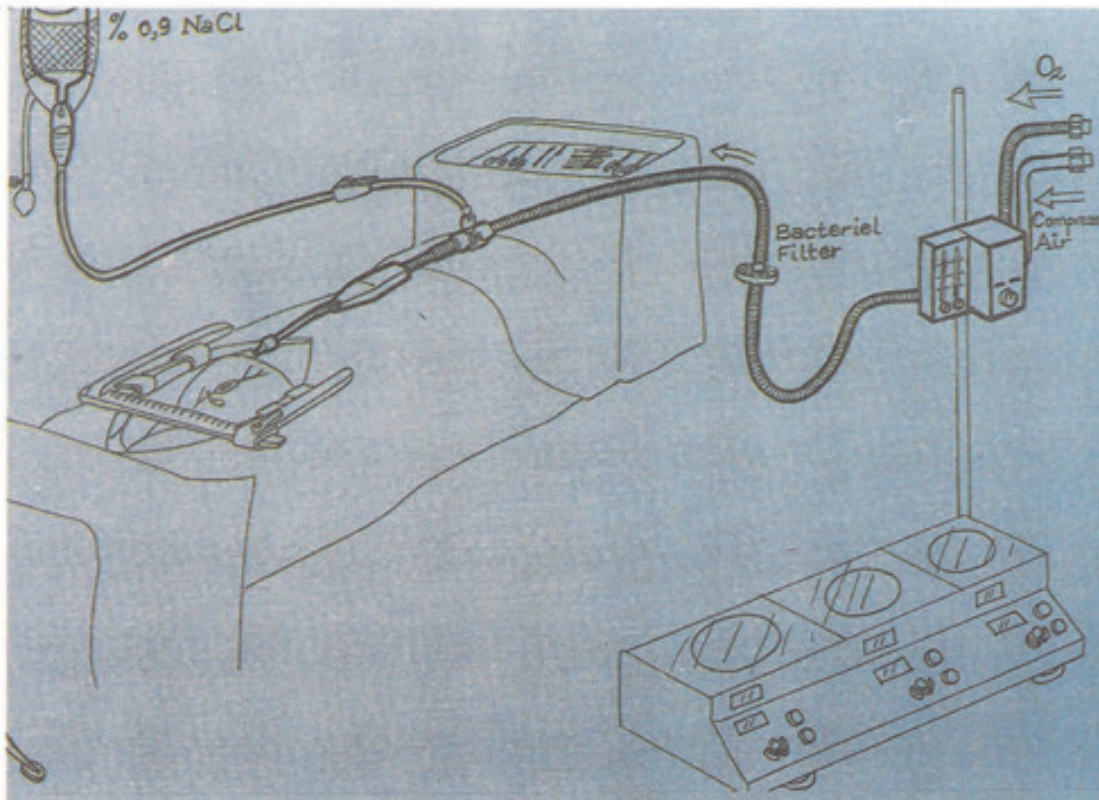


Figure 1. Schematic drawing

METHODS

After connecting the pump oxygenators O₂ supply to the operating table with a 3/8 inch tubing set line, and a small size coronary blower attached at the end of it; a flow of 6-8 liter/min 100% saturated O₂ mixed with compressed air flow is obtained. A sterile bacterial filter is fixed in the middle of the tubing set in order to prevent drying of the anastomosis area. 0.9% NaCl solution is pulverized by simultaneous administration into the compressed air line (Fig 1). The tip of coronary sucker is hold 3-4 cm. to the distal of coronary anastomosis and the blood is blown away. It is essential to be sure that the blown compressed O₂ is sterile. By establishing this technique, an excellent surgical exposure could be provided, despite the retrograde coronary blood flow (Fig 2).

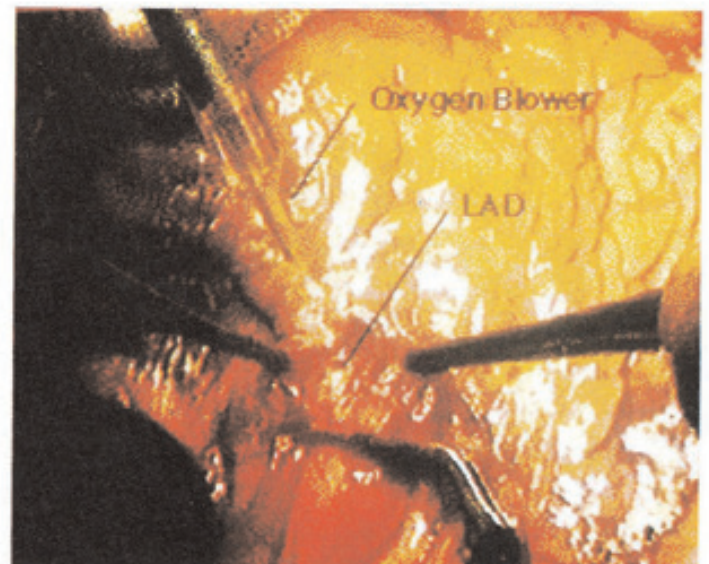


Figure 2. Surgical view

CONCLUSION

Retrograde and antegrade coronary blood flow is an difficulty encountered in CABG surgery especially done on beating heart. The same problem also appears in cases where retrograde coronary sinus cardioplegia is applied¹⁻⁵. To prevent coronary blood flow from the surgical site; aspiration with a coronary sucker, irrigation, proximal and distal interruption of the coronary vessel with bulldog clamps or snares may be used. All of these techniques have the same disadvantages. While aspirating the coronary artery on the beating heart, the tip of the coronary sucker may disrupt the intima layer of the native coronary artery causing early term thrombosis or anastomosis failure. Continuous irrigation of the anastomosis site is not a comfortable technique for the cardiovascular surgeon. This technique could be used when retrograde cardioplegia is applied, but is not practical in CABG on the beating heart. Using bulldog clamps or snares may cause mechanical trauma, plaque embolisation or spasm on the native coronary vessel. We have not seen any adverse effects of the technique mentioned. This technique has a potential risk for air embolism, but we have not encountered it in our practice.

As a conclusion, blowing the continuous coronary blood flow away with O₂ and compressed air in order to create a clean and clearer surgical vision is a safe economic, feasible and practical technique.

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