

# CHAPTER I

## INTRODUCTION



### 1. Background and Rationale

The latissimus dorsi musculocutaneous flap is one of the most reliable flaps in reconstructive surgery [1]. However, the flap sacrifices a large muscle portion, which results in significant functional impairment [2, 3]. Additionally, thickness of this flap is not suitable for resurfacing body defect of distal limb [4]. Perforator based flaps from the back can be made thin for aesthetic, functional refinement and useful for resurfacing defect [4, 5]. The need for thin flap coverage has increased, especially for contouring or covering of body defects caused by crushing or degloving injuries, the release of contracted burn scars and wide resections of the skin cancer [5]. Since Angrigiani [1] first described the concept of the thoracodorsal artery perforator (TAP) flap, the harvesting technique of the latissimus dorsi musculocutaneous flap has been modified to exclude the muscle portion and to raise the cutaneous part only, based upon a single perforator of the thoracodorsal artery [1,4]. Several other reports have been published regarding the use of this flap [2, 5-13]. The thoracodorsal artery perforator flap has attracted great interest because it offers distinct advantages, including a long donor vessel that can reach recipient vessel distant to traumatized or irradiated defects, provides a flap of suitable thickness for resurfacing body defect of distal limb, the function in the latissimus dorsi muscle is preserved, and the donor region is hidden well in clothes. The main disadvantage of the TDAP flap has been described as tedious because of varying diameters and locations, requiring prolonged surgery [1, 4, 10, 11]. The specific pattern, size and location of the perforating vessels are important in the wide and varied reconstructive applications of this flap [14]. The pedicle and perforators of the lateral branch generally locate along the lateral border of the muscle which are more reliably determined, allows for a safe and rapid dissection [5]. For this reason, we focused only on the cutaneous perforators of the lateral branch of thoracodorsal artery, but details of the cutaneous perforator pattern of the lateral branch of the TAP flap and relatively between nerve & vessel have remained unclear, and a few cases have reported to guide the harvest of the TAP flap. In addition, systematic collection of the data related to the thoracodorsal artery perforator flap has not been done.

Therefore our dissections will be performed as an anatomy study to clarify the anatomy of the main vascular tree, the cutaneous perforating vessels focused on of the lateral branch of the thoracodorsal artery and the relationship of the nerve & vessel.

## 2. Research Questions

### Primary Research Question

-How many are the cutaneous perforators greater than 0.5 mm in diameter that arise from the lateral branch of the thoracodorsal artery perforator flap?

### Secondary Research Question

-Where is the location of the cutaneous perforator of the lateral branch of the thoracodorsal artery perforator flap?

-How is the thoracodorsal artery pattern of the thoracodorsal artery perforator flap?

-How does the thoracodorsal nerve relate to the thoracodorsal vessels in the thoracodorsal artery perforator flap?

-Where is the location of the direct cutaneous perforator of the thoracodorsal artery?

## 3. Objectives

1. To evaluate the number of cutaneous perforators greater than 0.5 mm in diameter of the lateral branch of the thoracodorsal artery perforator flap

2. To evaluate the location of the cutaneous perforator of the lateral branch of the thoracodorsal artery perforator flap.

3. To define the pattern of the thoracodorsal artery of the thoracodorsal artery perforator flap.

4. To define the relationship between the thoracodorsal nerve & vessels of the thoracodorsal artery perforator flap.

5. To evaluate the location of the direct cutaneous perforator of the thoracodorsal artery perforator flap.

#### **4. Assumption**

1. The measurement has the validity and reliability. The fineness of vernier caliper is 0.02 mm..
2. The cadavers have no impairment of the lateral thoracic wall.

#### **5. Operation Definition**

Perforator: a vessel that has its origin in one of the axial vessels of the body and that passes through certain structure elements of the body, besides interstitial connective tissue and fat, before reaching the subcutaneous fat layer.

Flap: a piece of tissue transplanted from one to another, contains blood vessels, tissue, muscle, fat and fascia.

#### **6. Key Words**

Thoracodorsal artery perforator flap

Resurfacing body defect

#### **7. Expected Benefits & Applications**

A better understanding of the neurovasvascular anatomy of the lateral and the medial branches of the thoracodorsal artery and its cutaneous perforator of the lateral branch within the latissimus dorsi muscle are useful in the strategic design the center of the thoracodorsal artery perforator flap and reduce operative time.