**CHAPTER 19**

**Analysis of surgical results of colon cancer in Northwestern Argentina (NOA)**

A survey was conducted of all patients operated on for colon cancer in the last 5 years in the main health care centers in the northwest of our country, including those who had complete and sufficient data. These were collected by members of the Argentine Society of Coloproctology who work in the provinces of Jujuy, Salta and Tucumán, both at the public and private level. They were:

**San Salvador de Jujuy, Jujuy**

* ***Hospital Pablo Soria***

- Dr. Pablo Jorge, MAAC, MSACP, MATCP

- Dr. Lucia D. Lamas, MAAC

Public and private practice

**Salta**

* ***Hospital San Bernardo***

- Dr. Vicente Borquez, MAAC, MSACP, MATCP

- Dr. Pablo Tacchi, MAAC, MSACP, MATCP

- Dr. Alejandro Sanchez Ruiz, MAAC, MSACP, MATCP

* ***Nuevo Hospital del Milagro***

- Dr. Martin Garcia, MAAC, MSACP, MATCP

Public and private practice

**San Miguel de Tucumán, Tucumán**

* ***Hospital Central de Salud***

- Dr. Susana Bruzzi, MAAC, MSACP, MATCP

- Dr. Audel Closas

Public practice

* ***Sanatorio Modelo***

- Dr. Paula Casares, MAAC, MATCP

- Dr. Hugo Amarillo, MAAC, MSACP, MATCP

Private practice

The results of this survey are shown in Table 19.1. Patients with metastases were excluded in order to concentrate the data according to the location of the tumor in the colon and because it was considered that patients with colorectal metastases should be part of a report in itself. Data were recorded for 788 patients, 261 from Salta, 71 from Jujuy and 456 from Tucumán. As reported in most of the literature, there was a slight predominance of the male sex (52.5%), except in Jujuy which had an equal distribution by sex.

**Table 19.1.** Characteristics of colon cancer cases treated in the NOA.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | **Salta** | **Jujuy** | **Tucumán** | **Patients (N)** |
| **Patients (N)** | | 261 | 71 | 456 | 788 |
| Sex | M  F | 142  119 | 35  36 | 237  219 | 414  374 |
| Ostoma | Yes  No | 46  215 | 30  41 | 115  341 | 191  597 |
| Emergency | Yes  No | 40  221 | 16  55 | 71  385 | 127  661 |
| Type of complication | Perforation  Obstruction  Bleeding | 167  26  5 | 6  10  0 | 14  56  1 | 187  92  6 |
| Endoscopic treatment | Yes  No | 1  260 | 3  68 | 5  451 | 9  779 |
| Laparoscopy | Yes  No | 216  45 | 31  40 | 324  132 | 571  217 |
| Location of  the tumor | Splenic flexure  Left colon  Right colon  Transverse colon | 17  62  116  66 | 1  51  13  4 | 19  231  202  4 | 37  344  331  74 |
| Type of surgery | Segmental colectomy  Extended colectomy  Right colectomy  Left colectomy  Hartmann´s | 64  21  83  69  0 | 3  1  13  35  5 | 7  52  215  138  82 | 74  74  311  242  87 |
| Adjuvant chemotherapy | Yes  No | 180  81 | 31  40 | 276  180 | 487  301 |

The need for emergency surgery was 16% (Salta 15%, Jujuy 22.5%, Tucumán 15%) and the incidence of elective and emergency ostomies was 25.3% (Salta 17%, Jujuy 42%, Tucumán 25%).

The most frequent complication was perforation (23.7%), followed by obstruction (11.6%) and bleeding (0.7%). When complications were considered proportionally, the incidence was 65.6% for perforation, 32.3% for obstruction and 2.1% for bleeding. The frequency of complications varied in the 3 regions, while in Jujuy and Tucumán obstruction was the first complication, similar to what has been reported in the literature, in Salta there was a strikingly high incidence of perforation (63%).

Colon cancer treatment was primarily surgical. Endoscopic treatment was possible in only 9 cases (1.1%) in the entire region. The initial approach was laparoscopic in 72% (Salta 82.7%, Jujuy 43%, Tucumán 71%).

The most frequent location was the left colon, followed by the right colon, transverse colon and splenic flexure. However, it was different by region. In Salta, the most frequent location was the right colon (44%), followed by the left colon, transverse colon and splenic flexure. In Jujuy, the left colon predominated (71%), followed by the right colon, transverse colon and splenic flexure. A similar distribution was found in Tucumán, with the left colon (50.6%), followed by the right colon, splenic flexure and transverse colon.

The type of surgery was right colectomy (39.3%), left colectomy (30.7%), Hartmann´s procedure (11%) and the same rate of segmental and extended colectomy (9%).

According to stage, stage I was the least frequent in the region, accounting for 3% of all treated cases, similarly for all sites, with slight variation. Early tumors were not frequent, according to the literature (Table 19.2).

The distribution of stage II was similar in all sites and subtypes, although there was a slight tendency towards a higher frequency of Stage IIC or T4b, which was the most frequent in Salta and Tucumán.

Stage IIIC was the most frequent stage III at all sites, with the distribution of cases across all sites being almost similar for stage IIIA and stage IIIB.

**Table 19.2.** Tumor stage of patients treated for colon cancer in the NOA.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | **Salta** | **Jujuy** | **Tucumán** | **Patients (N)** |
| **Patients (N)** | | 261 | 71 | 456 | 788 |
| **Stage I** | T1- T2 N0 M0 | 10 | 2 | 25 | 25 |
| **Stage IIA** | T3 N0 M0 | 13 | 3 | 45 | 61 |
| **Stage IIB** | T4 N0 M0 | 14 | 3 | 43 | 60 |
| **Stage IIC** | T4b N0 M0 | 24 | 1 | 63 | 88 |
| **Stage IIIA** | T1-T2 N1 M0  T1 N2 M0 | 69  6 | 2  3 | 179  9 | 250  18 |
| **Stage IIIB** | T3-T4 N1 M0  T2- T3 N2 M0  T1- T2 N2 M0 | 22  14  15 | 4  10  10 | 67  61  63 | 93  85  88 |
| **Stage IIIC** | T4 N2 M0  T3- T4 N2 M0  T4 N1-N2 M0 | 8  66  24 | 6  7  1 | 35  184  8 | 49  257  33 |