بسم الله الرحمن الرحيم

Augmentation of external anal sphincter repair by injection of bone marrow aspirate concentrate

By

Mohammad Mohammad Alsaeed

Lecturer of general surgery

MUH

Original article

doi:10.1111/codi.13579

Evaluation of anatomical and functional results of overlapping anal sphincter repair with or without the injection of bone marrow aspirate concentrate: a case–control study

W. W. Khafagy*, M. M. El-Said*, W. M. Thabet*, S. E.-S. Aref†, W. Omar*, S. H. Emile*, H. Elfeki*, M. S. El-Ghonemy† and M. T. El-Shobaky*

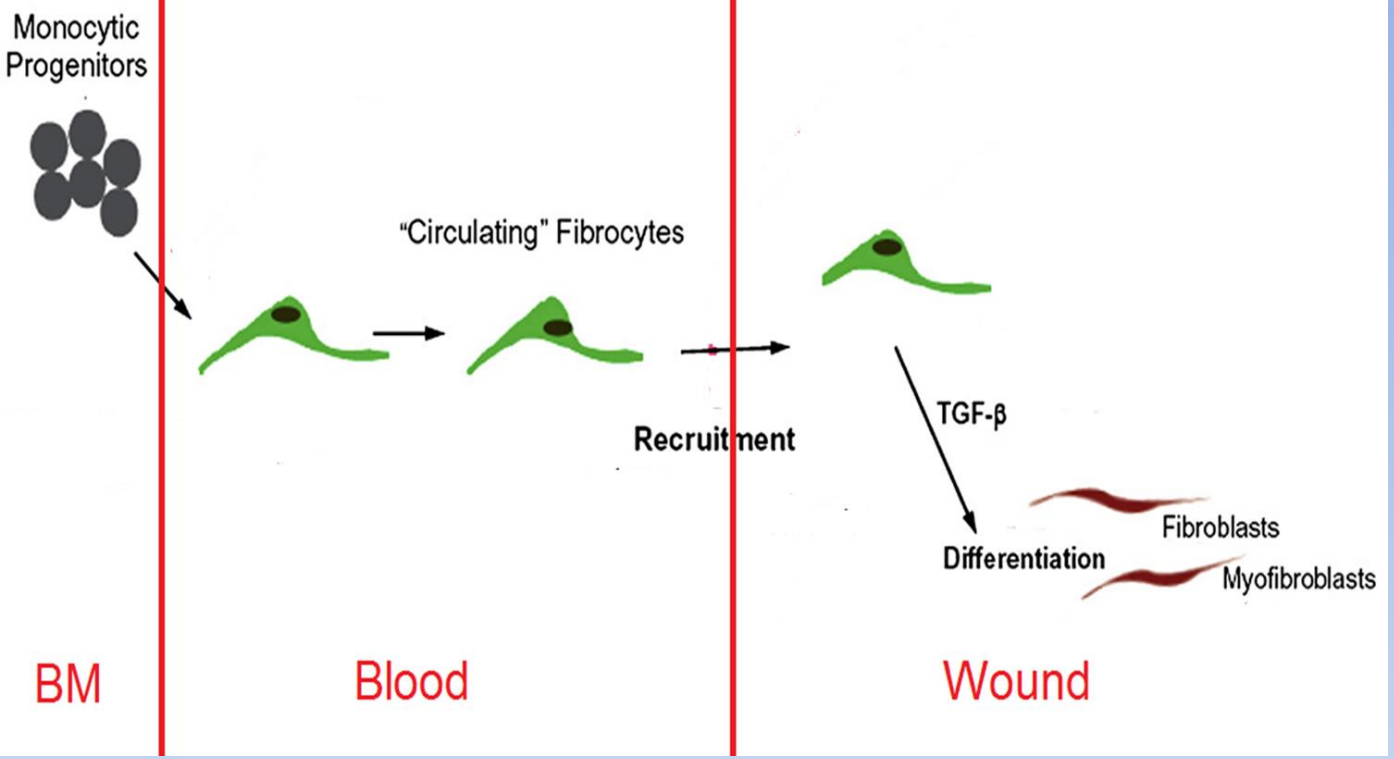
*General Surgery Department, Mansoura Faculty of Medicine, Mansoura University, Mansoura City, Dakahlia Providence, Egypt and †Clinical Pathology Department, Mansoura Faculty of Medicine, Mansoura University, Mansoura City, Dakahlia Providence, Egypt

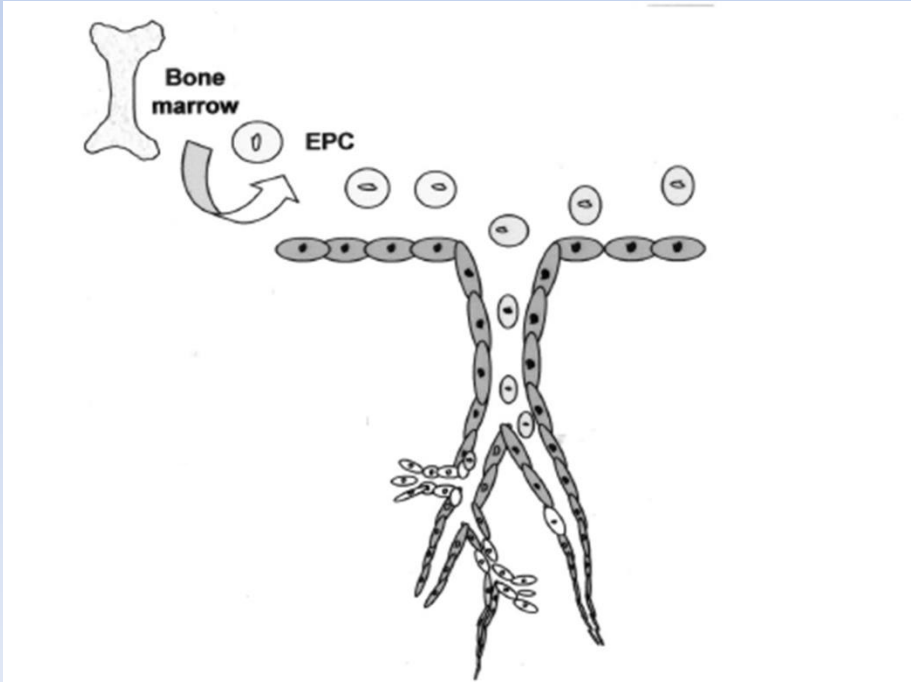
Received 14 August 2016; accepted 20 October 2016; Accepted Article online 10 December 2016

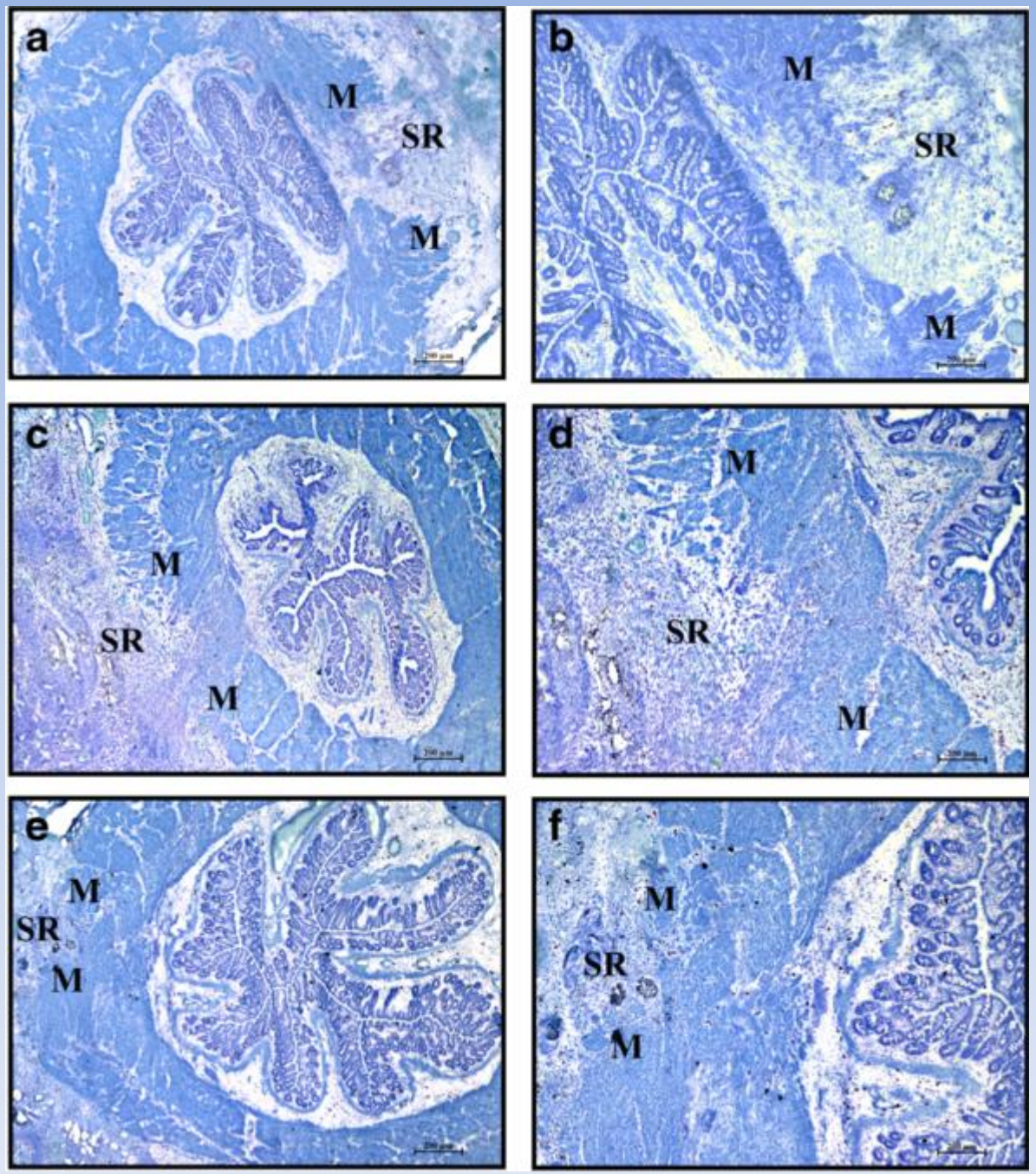
- **EAS injury** is a frequent cause of FI.
- **OASR** is the standard operation for injured EAS.
- Functional outcome: Deteriorates from **85%** (<2.5 Y) to **50%** (>5 Y).
- Explanation: Poor healing → weak scar → Recurrent EAS defect.
- Solution: Augmenting OASR with local injection of **BMAC**.

BMAC

- **85%** of cells in BMAC are **BM-MNCs.**
- BM-MNCs contain many **progenitor cells** that are involved in wound healing:
  - –Fibrocyte progenitors.
  - –Endothelial progenitor cells (EPCs).

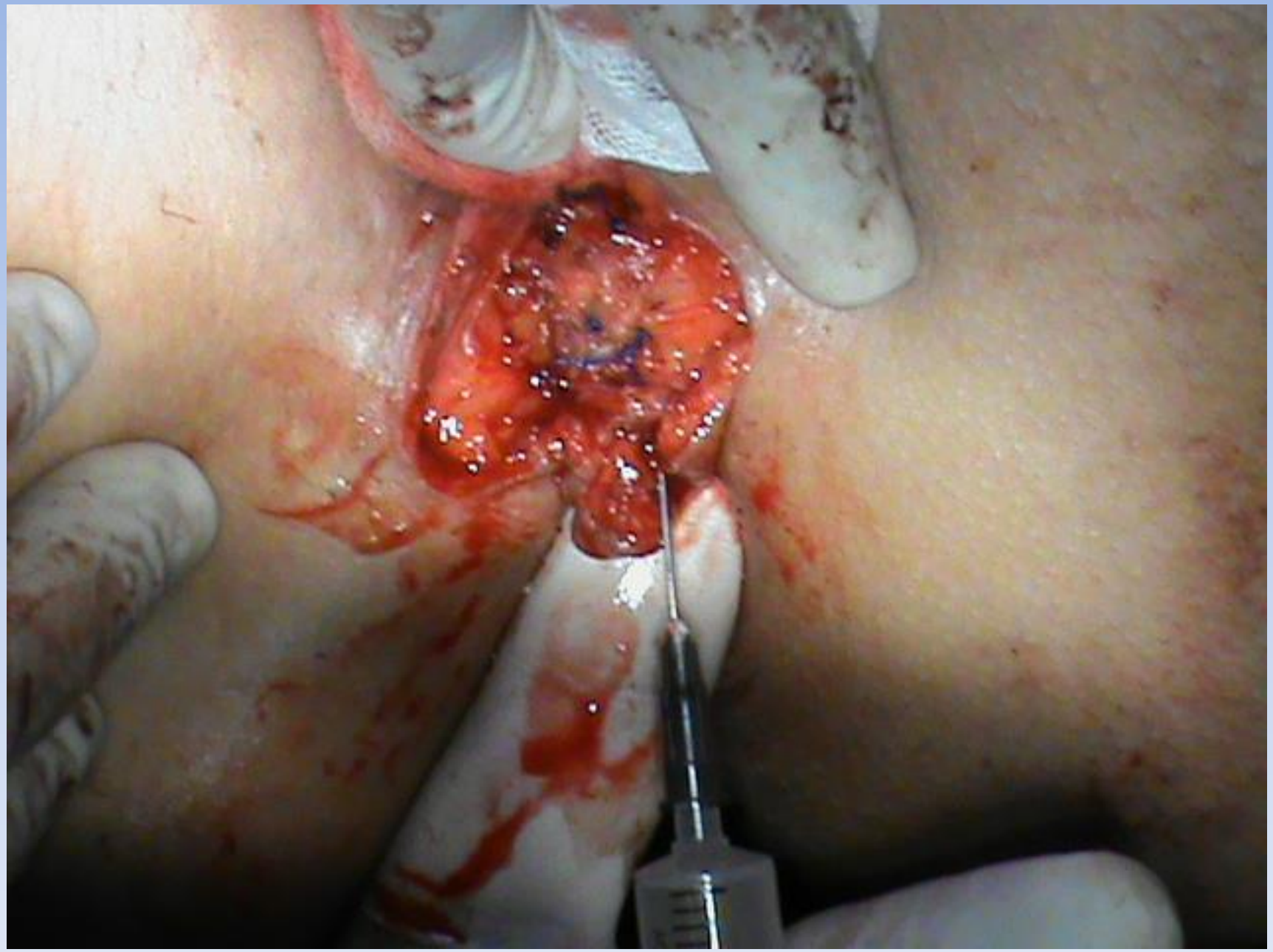

Monocytic Progenitors
"Circulating" Fibrocytes
Recruitment
TGF-β
Fibroblasts
Differentiation
Myofibroblasts
BM
Blood
Wound


Bone marrow
EPC


a
M
SR
M
b
M
SR
M
c
M
SR
M
d
M
SR
M
e
M
SR
M
f
M
SR
M

Study design

- Case control study.
- A prospective case series group (20) managed by **OASR & BMAC** injection.
- A retrospective control group (20) managed by **OASR**.
- We included patients with a **single** EAS defect affecting **<1/2** of anal circumference



11-2008 to 7-2012

- OASR

7-2013 (**end of follow up**) (28 m)

- Assessment of OASR group by Wexner score & EAUS

10-2012 to 3-2015

- OASR + BMAC injection

3-2016 (**end of follow up**) (30 m)

- Assessment of BMAC group by Wexner score & EAUS

	OASR	BMAC	P value
Wexner score at 6 months	7.7± 8.2	4.8 ±7.7	0.256
Wexner score at end of follow up	10.6± 7.4	5.4 ±7.6	0.03
P value	0.24	0.8	
EAS defect (Percent)	18.3±18.9	12.2±17.5	0.291

Patients with a small preoperative EAS defect (< 1/3 of anal circumference)

	OASR	BMAC	P value
Wexner score at 6 months	1.7 ± 3.8	0	0.153
Wexner score at end of follow up	5.1 ± 3.2	0	<0.0001
P value	0.03		
EAS defect (Percent)	4.63±4.43	0	0.002

Patients with a large (>1/3) preoperative EAS defect

	OASR	BMAC	P value
Wexner score at 6 months	15 ± 5.7	10.6 ± 8.5	0.21
Wexner score at end of follow up	17.2 ± 3.5	12.1 ± 6.9	0.06
P value	0.33	0.68	
EAS defect (in clock)	4.22±1.92	3.22±1.99	0.2938

Thank you